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UK METEOROLOGICAL OFFICE
GLOBAL DATA MONITORING REPORT

August 2001

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis (the current cut-off time is approximately 7.2 hours after each analysis time). The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1and 2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or sea surface temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIFTER observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At the UK Met. Office, we monitor SYNOP pressure after it has been interpolated to our Global NWP Model's surface height. For most synoptic stations (about 75%), the surface pressure (at the model surface) is calculated from the reported station-level pressure, or, if this is not available, the height of a standard pressure-level (e.g. 850 hPa or 700 hPa). If neither of these are available, or if the reported station-level pressure is deemed unreliable, the reported mean sea-level pressure is used (about 25% of SYNOPs).

Aircraft observations

Tables 4A (300-150 hPa) and 4B (1000-301 hPa) contain lists of statistics calculated from data received from all airline carriers.

Figures 3A (300-150 hPa) and 3B (1000-301 hPa) show 10 degree lat/long box average numbers of aircraft reports in AIREP/AMDAR code (including AIREP, ACAR, AMDAR, ASDAR and ADS) received per day throughout the month at Bracknell and assimilated into model runs. Observations with a vector wind difference (compared with the model background field) of >60 m s^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4A-7A (300-150 hPa) and 4B-7B (1000-301 hPa) show wind statistics for AIREP/ASDAR in AIREP/AMDAR code (including AIREP, ACAR, AMDAR, ASDAR and ADS). Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-39 show sounding statistics from the polar orbitting satellite NOAA-15. Figure 25 shows the mean daily number of ATOVS soundings, and figures 26-39 show mean and standard deviation observation-background differences for brightness temperature, for selected channels.
N.B. The sounding data is bias-corrected (and thinned) before being assimilated in the UKMO NWP model.

Figure		Weighting function peak (hPa)
26	Mean	Surface (HIRS8)
27	SD	Surface (HIRS8)
28	Mean	700 (HIRS15)
29	SD	700 (HIRS15)
30	Mean	500-700 (HIRS11)
31	SD	500-700 (HIRS11)
32	Mean	400 (HIRS4)
33	SD	400 (HIRS4)
34	Mean	700 (AMSUA5)
35	SD	700 (AMSUA5)
36	Mean	300 (AMSUA7)
37	SD	300 (AMSUA7)
38	Mean	100 (AMSUA9)
39	RMS	100 (AMSUA9)

Figures 40-54 show sounding statistics from the polar orbitting satellite NOAA-16. Figure 40 shows the mean daily number of ATOVS soundings, and figures 41-54 show mean and standard deviation observation-background differences for brightness temperature, for selected channels.
N.B. The sounding data is bias-corrected (and thinned) before being assimilated in the UKMO NWP model.

Figure		Weighting function peak (hPa)
41	Mean	Surface (HIRS8)
42	SD	Surface (HIRS8)
43	Mean	700 (HIRS15)
44	SD	700 (HIRS15)
45	Mean	500-700 (HIRS11)
46	SD	500-700 (HIRS11)
47	Mean	400 (HIRS4)
48	SD	400 (HIRS4)
49	Mean	700 (AMSUA5)
50	SD	700 (AMSUA5)
51	Mean	300 (AMSUA7)
52	SD	300 (AMSUA7)
53	Mean	100 (AMSUA9)
54	RMS	100 (AMSUA9)

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics (**Geopotential Height and Windspeed at 100 and 500 hPa**) for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.
4. February 96 Monitoring statistics for GOES-7 have been replaced by statistics for GOES-8 and GOES-9.
5. April 96. 500 km and 120 km SATEMs replaced by 120 km resolution temperature profiles produced locally from the radiances disseminated by NESDIS.
6. February 97 Monitoring statistics for Meteosat 5 have been replaced by statistics for Meteosat 6.
7. Sept 97 Monitoring statistics for NOAA-12 removed. Figures 25-27 now show data for NOAA-11
8. January 1998. Increase in resolution of UKMO global forecast model.
9. April 1998. GOES winds ceased on 2nd March 1998, and were replaced with GOES high resolution winds from 15th.
10. June 1998. Monitoring statistics for Meteosat-6 were replaced by monitoring statistics for Meteosat-7, from 3rd June.
11. June 1998. Corrections in our processing of radiosonde data resulted in a decrease in the number of 500hPa geopotential heights in Figure 8 of about 230 per 24 hours (compared with previous reports), and a small increase in the number of 300hPa winds in Figure 9.
12. July 1998. Meteosat-5 began transmitting winds from 2nd July, at 63 degrees East (over the Indian ocean), and this data is included in the statistics.
13. July 1998. GOES-9 (at 135W) was replaced mid-month by GOES-10 (initially at 105W, moving towards 135W).
14. February 1999. Problems with NOAA-11, and TOVS data ceased to be assimilated from 26 February.
15. March 1999. UKMO introduced 3-D VAR assimilation system on 29 March, and also began assimilating ATOVS data from NOAA-15.
16. May 1999. Included statistics for ATOVS sounding data from NOAA-15.
17. September 1999. Included statistics for high resolution visible winds from Meteosat-5 and Meteosat-7.
18. October 1999. The 3-D VAR assimilation system was upgraded on 19 October, including improvements in the assimilation of ATOVS radiances, use of SSM/I surface wind speed, an improvement in the calculation of surface pressure for SYNOPs, and thinning and revision of observation errors of aircraft data.
19. November 1999. High resolution visible winds from Meteosat-5 and Meteosat-7 removed until used operationally.
20. April 2000. Aireps in Table 4 and Figures 3-7 split into ranges 300-150 hPa (A) and 1000-301 hPa (B).
21. September 2000. Corrected an error affecting the mean positions of a minority of buoys in Table 2.
22. November 2000. An error in the production of Table 6 was corrected. Previously, some sondes with suspect vector winds were being missed.
23. April 2001. Included statistics for ATOVS sounding data from NOAA-16.
24. May 2001. Included statistics for sea surface temperatures from marine surface observations.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH: August 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from UKMO global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored :Mean sea level pressure (hPa).
:Wind speed ($m\ s^{-1}$).
:Wind direction (Degrees).
:Sea surface temperature (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)
:25 $m\ s^{-1}$ (vector wind)
:10 degrees (sea surface temperature)

SELECTION CRITERIA :NOBS ≥ 20 , and one or more of the following:

1.|bias|	≥ 4 hPa	(pressure),
	≥ 5 $m\ s^{-1}$	(wind speed),
	≥ 30 degrees	(direction).
	≥ 3 degrees	(sea surface temperature).
2.SD	≥ 6 hPa	(pressure),
	≥ 80 degrees	(direction).
	≥ 5 degrees	(sea surface temperature).
3.PGE	≥ 25	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 $m\ s^{-1}$

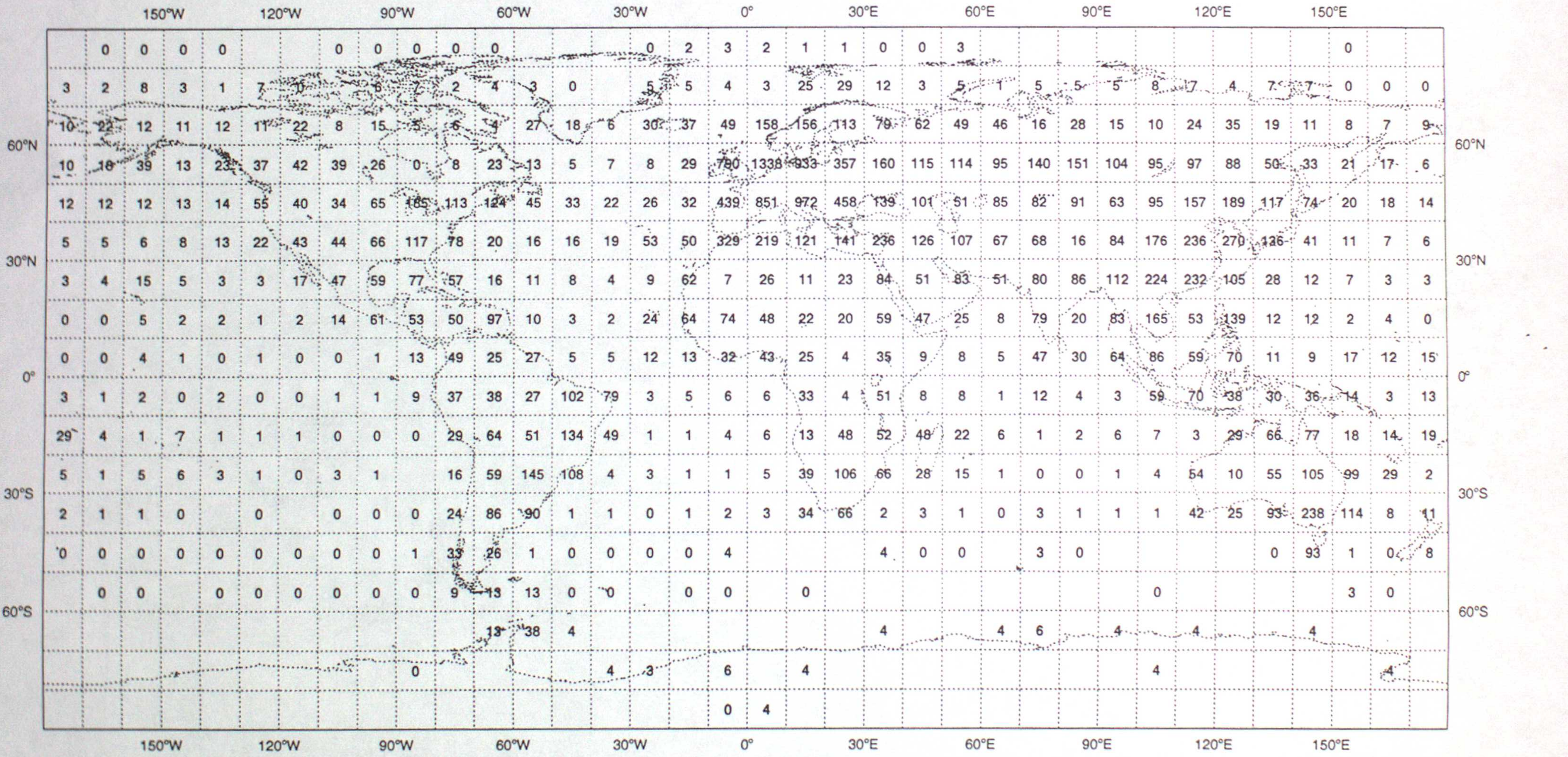
IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
BOAB	ALL	P	SUR	48	0	0	1.9	-4.2	4.6
C6LU3	ALL	P	SUR	34	0	0	1.1	5.3	5.4
ELAQ5	ALL	P	SUR	34	0	0	0.8	4.9	5.0
ELQA8	ALL	P	SUR	27	0	0	0.9	-4.0	4.1
ELTX9	ALL	P	SUR	57	18	32	5.2	-1.2	5.3
ELVY8	ALL	P	SUR	23	0	0	2.1	-6.2	6.5
ELWR	ALL	P	SUR	40	0	0	1.0	-11.2	11.3
ELXU9	ALL	P	SUR	35	2	6	6.3	-7.3	9.7
ELZF9	ALL	P	SUR	24	0	0	1.1	6.3	6.4
FGTO	ALL	P	SUR	43	19	44	8.1	-0.3	8.1
H3EP	ALL	P	SUR	74	0	0	3.1	-5.0	5.9
LAXD4	ALL	P	SUR	24	5	21	6.6	-6.7	9.4
PECF	ALL	P	SUR	63	1	2	2.2	-4.2	4.7
P3NB5	ALL	P	SUR	47	0	0	2.9	-4.2	5.1
P3YS5	ALL	P	SUR	52	0	0	3.2	4.7	5.7
UANF	ALL	P	SUR	48	2	4	2.0	-4.5	4.9
UBAU	ALL	P	SUR	101	0	0	1.7	-4.3	4.6
UCTI	ALL	P	SUR	24	4	17	5.2	-10.0	11.3
UFAA	ALL	P	SUR	53	0	0	1.2	-4.2	4.4
UFNO	ALL	P	SUR	22	0	0	2.6	6.5	7.0
UHLE	ALL	P	SUR	82	3	4	1.0	-10.8	10.9
VC6750	ALL	P	SUR	40	0	0	6.3	-0.7	6.4
VOWN	ALL	P	SUR	21	6	29	4.0	-4.1	5.7
VRUN7	ALL	P	SUR	20	0	0	1.2	4.7	4.8
V7BW9	ALL	P	SUR	58	0	0	1.9	-4.9	5.3
WBN3008	ALL	P	SUR	38	0	0	1.6	-4.1	4.4
WCV7620	ALL	P	SUR	43	0	0	1.0	5.0	5.1
WUW2120	ALL	P	SUR	20	20	100			
16051	ALL	P	SUR	69	69	100			
3FHF8	ALL	P	SUR	20	0	0	0.6	-4.4	4.4
62137	ALL	P	SUR	96	0	0	0.7	-5.8	5.9
62151	ALL	P	SUR	27	2	7	2.6	8.0	8.4
9MBW	ALL	P	SUR	47	0	0	2.4	-7.5	7.9
WIND SPEED									
DGTX	ALL	SPEED	SUR	37	11	30	1.9	2.1	2.8
DHDH	ALL	SPEED	SUR	54	0	0	5.9	5.0	7.7
ELWG8	ALL	SPEED	SUR	32	1	3	5.3	9.8	11.1
ELWP8	ALL	SPEED	SUR	28	0	0	3.6	9.3	10.0
ELWZ3	ALL	SPEED	SUR	24	0	0	3.0	5.7	6.5
ELXT8	ALL	SPEED	SUR	25	0	0	5.0	7.7	9.1
ELYA7	ALL	SPEED	SUR	24	0	0	6.7	5.7	8.8
ELYL9	ALL	SPEED	SUR	34	2	6	7.8	5.8	9.7
GXUP	ALL	SPEED	SUR	39	0	0	6.2	6.3	8.9
KS000	ALL	SPEED	SUR	20	0	0	5.1	5.6	7.6
LAOM4	ALL	SPEED	SUR	46	0	0	3.2	8.3	8.9
LAVX4	ALL	SPEED	SUR	35	0	0	3.4	5.5	6.4
MXAR9	ALL	SPEED	SUR	48	1	2	7.8	6.9	10.4
OWRN2	ALL	SPEED	SUR	45	0	0	4.8	9.2	10.4
PPSO	ALL	SPEED	SUR	29	0	0	5.0	7.2	8.7
SK000	ALL	SPEED	SUR	44	11	25	5.2	5.5	7.5
SXYY	ALL	SPEED	SUR	30	0	0	4.8	6.9	8.4
S6JM	ALL	SPEED	SUR	55	20	36	7.4	4.0	8.4
S6PI	ALL	SPEED	SUR	24	0	0	5.9	6.3	8.6
VRUN7	ALL	SPEED	SUR	20	0	0	4.1	10.9	11.6
3ESP7	ALL	SPEED	SUR	55	0	0	3.4	6.6	7.5

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND DIRECTION									
BBXX SK0	ALL	DIRN.	SUR	48	17	35	87.6	-2.0	87.6
ELXX2	ALL	DIRN.	SUR	48	0	0	55.7	31.8	64.1
SK004	ALL	DIRN.	SUR	68	26	38	85.9	24.8	89.4
VCLM	ALL	DIRN.	SUR	60	0	0	26.8	35.1	44.2
WAUU	ALL	DIRN.	SUR	22	0	0	46.0	-33.6	57.0
62410	ALL	DIRN.	SUR	52	0	0	17.2	-31.8	36.2
62414	ALL	DIRN.	SUR	37	0	0	14.3	-38.9	41.4
SEA SURFACE TEMPERATURE									
BBXX SK0	ALL	SST	SUR	150	78	52	0.9	0.1	0.9
CGTF	ALL	SST	SUR	48	6	13	4.6	4.2	6.2
CG2248	ALL	SST	SUR	34	34	100			
CG2960	ALL	SST	SUR	87	27	31	1.6	1.9	2.4
C6MS4	ALL	SST	SUR	32	0	0	0.9	-4.2	4.2
C6QF4	ALL	SST	SUR	26	0	0	2.4	4.7	5.3
DBBX	ALL	SST	SUR	79	23	29	0.2	-0.1	0.2
DPAN	ALL	SST	SUR	21	0	0	0.5	3.6	3.7
ELKU8	ALL	SST	SUR	47	0	0	1.0	4.3	4.4
ELPV6	ALL	SST	SUR	48	1	2	2.0	3.0	3.6
ELX03	ALL	SST	SUR	33	0	0	1.2	-3.5	3.7
GXIC	ALL	SST	SUR	74	0	0	1.5	3.2	3.5
H9GW	ALL	SST	SUR	57	0	0	0.8	3.8	3.9
JADY	ALL	SST	SUR	79	0	0	0.5	4.8	4.9
KIOH	ALL	SST	SUR	45	0	0	1.4	-3.2	3.5
KRHX	ALL	SST	SUR	52	1	2	1.4	-4.2	4.4
KRPB	ALL	SST	SUR	39	0	0	0.9	-5.9	5.9
MZIF7	ALL	SST	SUR	50	0	0	1.5	-3.4	3.7
OWDQ2	ALL	SST	SUR	31	31	100			
PDIU	ALL	SST	SUR	23	0	0	1.3	-3.0	3.3
PDYI	ALL	SST	SUR	56	0	0	1.1	-3.2	3.4
P3NB5	ALL	SST	SUR	47	0	0	1.5	3.4	3.7
SK005	ALL	SST	SUR	78	78	100			
TSMS	ALL	SST	SUR	40	1	2	1.1	-4.5	4.6
UCDM	ALL	SST	SUR	47	4	9	1.7	-4.9	5.2
UCJR	ALL	SST	SUR	26	1	4	2.7	3.0	4.0
UCNK	ALL	SST	SUR	25	0	0	1.9	-3.8	4.3
VCTX	ALL	SST	SUR	20	5	25	1.5	0.6	1.6
VGLZ	ALL	SST	SUR	30	29	97	0.0	-4.9	4.9
V2AC6	ALL	SST	SUR	37	0	0	2.9	3.0	4.2
WCW9126	ALL	SST	SUR	24	12	50	0.3	1.7	1.7
WCY6777	ALL	SST	SUR	38	0	0	3.1	3.3	4.5
WCZ9380	ALL	SST	SUR	22	1	5	1.5	5.7	5.9
WGLA	ALL	SST	SUR	49	0	0	1.5	-3.4	3.7
WPGJ	ALL	SST	SUR	61	0	0	1.4	-3.3	3.6
WZJD	ALL	SST	SUR	42	0	0	0.4	-3.0	3.1
ZQAY4	ALL	SST	SUR	45	0	0	2.4	-3.0	3.8
16051	ALL	SST	SUR	75	75	100			
23094	ALL	SST	SUR	20	1	5	1.3	-3.7	4.0
3ECM7	ALL	SST	SUR	95	0	0	1.5	3.4	3.7
3FDO6	ALL	SST	SUR	56	0	0	0.9	3.7	3.8
3FIG5	ALL	SST	SUR	87	0	0	2.1	5.7	6.1
45141	ALL	SST	SUR	732	732	100			
45145	ALL	SST	SUR	640	640	100			
45147	ALL	SST	SUR	733	733	100			
45148	ALL	SST	SUR	734	734	100			
45150	ALL	SST	SUR	715	715	100			
45152	ALL	SST	SUR	730	730	100			
45158	ALL	SST	SUR	414	0	0	1.3	4.2	4.4
46131	ALL	SST	SUR	729	729	100			
46146	ALL	SST	SUR	569	569	100			
46181	ALL	SST	SUR	733	733	100			
62128	ALL	SST	SUR	24	0	0	0.6	-3.2	3.3

Figure 1. SHIP/SYNOP mean daily count. AUGUST 2001

Main hours only

Global average number of observations in 24 hours = 21531



	0	0	0	0			0	0	0	0	0				0	2	3	2	1	1	0	0	3										0		
3	2	8	3	1	7	0		6	7	2	4	3	0		5	5	4	3	25	29	12	3	5	1	5	5	5	8	17	4	7	7	0	0	0
10	22	12	11	12	11	22	8	15	5	6	4	27	18	6	30	37	49	158	156	113	79	62	49	46	16	28	15	10	24	35	19	11	8	7	9
10	18	39	13	23	37	42	39	26	0	8	23	13	5	7	8	29	780	1338	933	357	160	115	114	95	140	151	104	95	97	88	50	33	21	17	6
12	12	12	13	14	55	40	34	65	185	113	124	45	33	22	26	32	439	851	972	458	139	101	51	85	82	91	63	95	157	189	117	74	20	18	14
5	5	6	8	13	22	43	44	66	117	78	20	16	16	19	53	50	329	219	121	141	236	126	107	67	68	16	84	176	236	270	126	41	11	7	6
3	4	15	5	3	3	17	47	59	77	57	16	11	8	4	9	62	7	26	11	23	84	51	83	51	80	86	112	224	232	105	28	12	7	3	3
0	0	5	2	2	1	2	14	61	53	50	97	10	3	2	24	64	74	48	22	20	59	47	25	8	79	20	83	165	53	139	12	12	2	4	0
0	0	4	1	0	1	0	0	1	13	49	25	27	5	5	12	13	32	43	25	4	35	9	8	5	47	30	64	86	59	70	11	9	17	12	15
3	1	2	0	2	0	0	1	1	9	37	38	27	102	79	3	5	6	6	33	4	51	8	8	1	12	4	3	59	70	38	30	36	14	3	13
29	4	1	7	1	1	1	0	0	0	29	64	51	134	49	1	1	4	6	13	48	52	48	22	6	1	2	6	7	3	29	66	77	18	14	19
5	1	5	6	3	1	0	3	1		16	59	145	108	4	3	1	1	5	39	106	66	28	15	1	0	0	1	4	54	10	55	105	99	29	2
2	1	1	0		0		0	0	0	24	86	90	1	1	0	1	2	3	34	66	2	3	1	0	3	1	1	1	42	25	93	238	114	8	11
0	0	0	0	0	0	0	0	0	1	33	26	1	0	0	0	0	4				4	0	0		3	0					0	93	1	0	8
	0	0		0	0	0	0	0	0	9	13	13	0	0		0	0		0									0					3	0	
											13	38	4								4			4	6		4		4			4			
									0					4	3		6		4									4						4	
																	0	4																	

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH: August 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoys.

Standard of comparison :Background field from UKMO global model.

Position :Average latitude and longitude for period.

Observation times :00, 06, 12, 18 UTC

Elements monitored :Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (degrees).
:Sea surface temperature (degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 m s^{-1} (vector wind)
:10 degrees (sea surface temperature)

SELECTION CRITERIA : NOBS ≥ 20 , and one or more of the following:

1.|bias|	≥ 4 hPa	(pressure),
	≥ 5 m s^{-1}	(wind speed),
	≥ 30 degrees	(direction).
	≥ 3 degrees	(sea surface temperature).
2.SD	≥ 6 hPa	(pressure),
	≥ 80 degrees	(direction).
	≥ 5 degrees	(sea surface temperature).
3.PGE	≥ 25.	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
14603	19.4	-82.5	ALL	P	SUR	129	116	90	5.4	-3.8	6.6
17532	63.5	-144.2	ALL	P	SUR	118	118	100			
17630	62.6	-141.6	ALL	P	SUR	138	138	100			
21526	20.4	123.6	ALL	P	SUR	114	50	44	1.3	13.4	13.4
21604	19.8	-73.2	ALL	P	SUR	28	28	100			
21632	38.3	-77.0	ALL	P	SUR	63	63	100			
25541	81.3	101.7	ALL	P	SUR	806	0	0	1.4	-4.1	4.4
41505	28.3	-66.7	ALL	P	SUR	184	0	0	0.9	-4.0	4.1
44725	50.6	-36.0	ALL	P	SUR	175	14	8	3.4	4.4	5.6
46561	33.1	-167.8	ALL	P	SUR	242	0	0	0.6	-5.0	5.1
47561	76.1	-179.6	ALL	P	SUR	97	0	0	5.5	7.3	9.2
48582	79.3	-122.7	ALL	P	SUR	652	78	12	6.2	0.2	6.2
48583	81.6	-100.8	ALL	P	SUR	706	96	14	6.8	-0.6	6.9
48584	38.8	-77.0	ALL	P	SUR	665	124	19	6.3	-1.1	6.4
52539	38.3	-77.0	ALL	P	SUR	51	51	100			
WIND SPEED											
52522	34.1	-169.9	ALL	SPEED	SUR	187	0	0	1.4	-5.2	5.4
WIND DIRECTION											
41639	25.4	-64.0	ALL	DIRN.	SUR	49	2	4	19.1	-81.6	83.8
SEA SURFACE TEMPERATURE											
14603	19.4	-82.4	ALL	SST	SUR	72	36	50	4.6	-1.2	4.7
17532	63.0	-143.0	ALL	SST	SUR	147	147	100			
17630	62.8	-142.4	ALL	SST	SUR	157	157	100			
17635	-31.4	-13.2	ALL	SST	SUR	112	112	100			
21632	38.3	-77.0	ALL	SST	SUR	67	67	100			
21904	45.1	142.2	ALL	SST	SUR	254	130	51	1.1	1.0	1.5
22913	41.0	134.8	ALL	SST	SUR	324	0	0	1.1	3.9	4.1
22937	44.4	-124.5	ALL	SST	SUR	249	9	4	1.9	3.6	4.1
32629	-22.4	-137.2	ALL	SST	SUR	278	76	27	1.1	-0.3	1.1
33502	-23.0	-18.3	ALL	SST	SUR	104	0	0	0.2	3.1	3.1
33563	63.0	-142.7	ALL	SST	SUR	111	111	100			
33949	-57.1	-49.1	ALL	SST	SUR	216	113	52	4.2	2.0	4.7
34913	-22.8	-113.3	ALL	SST	SUR	152	49	32	0.9	8.1	8.1
43508	11.7	-116.6	ALL	SST	SUR	53	53	100			
43912	17.5	-102.4	ALL	SST	SUR	60	60	100			
44509	47.2	-54.0	ALL	SST	SUR	43	0	0	0.7	5.6	5.7
44532	62.0	-98.5	ALL	SST	SUR	32	32	100			
46736	32.7	-165.2	ALL	SST	SUR	26	0	0	0.5	4.5	4.5
46903	34.1	-147.7	ALL	SST	SUR	414	0	0	1.1	3.1	3.3
46970	44.4	-124.5	ALL	SST	SUR	232	8	3	2.2	3.2	3.9
46972	30.0	-122.6	ALL	SST	SUR	210	0	0	0.3	3.6	3.6
51523	-7.8	170.6	ALL	SST	SUR	74	74	100			
51527	-3.5	153.2	ALL	SST	SUR	43	43	100			
51611	1.6	-94.8	ALL	SST	SUR	128	85	66	3.7	-4.4	5.7
52539	38.3	-77.0	ALL	SST	SUR	39	39	100			
52640	35.1	-75.7	ALL	SST	SUR	60	60	100			
53517	-11.3	60.3	ALL	SST	SUR	1159	0	0	1.0	7.3	7.4
54856	-45.3	-126.9	ALL	SST	SUR	88	0	0	0.3	3.8	3.8
55912	-37.0	166.6	ALL	SST	SUR	662	1	0	1.7	4.8	5.1
61589	41.0	134.6	ALL	SST	SUR	33	12	36	6.7	0.8	6.8
62843	45.2	-14.8	ALL	SST	SUR	325	98	30	4.7	2.1	5.1
62904	33.1	-16.3	ALL	SST	SUR	23	0	0	3.7	3.4	5.0

Figure 2. DRIFTER mean daily count. AUGUST 2001
Main hours only
Global average number of observations in 24 hours = 9762

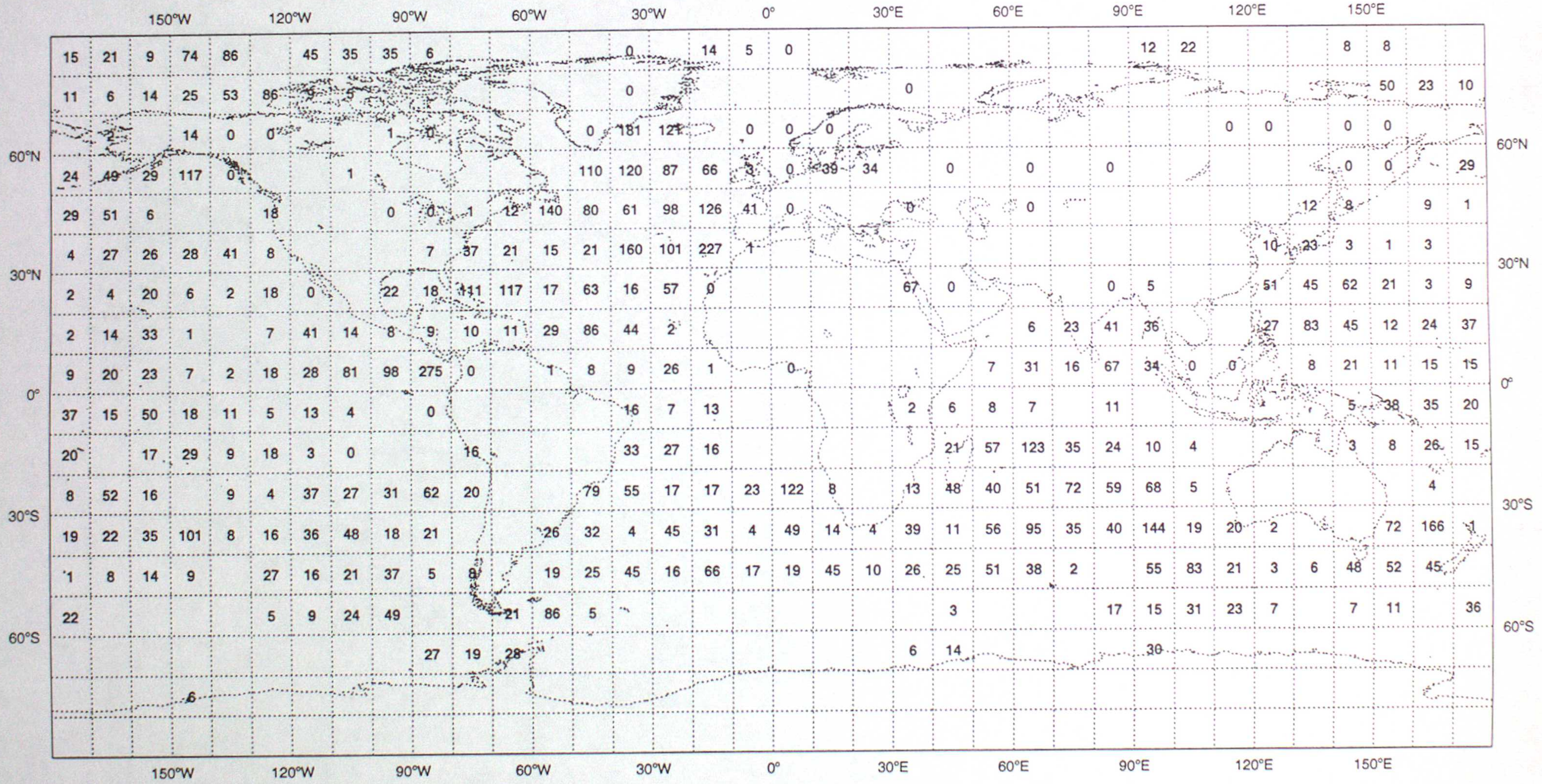

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH: August 2001

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Surface pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged excluding those with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1.|bias|	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60010	28.3N	16.5W	2367	S7	86	0	0	5	1.4	-4.4	4.6
60437	36.3N	2.8E	981	S8	78	0	0	0	0.7	-6.6	6.6
60476	35.4N	7.2E	1116	S8	79	20	25	0	1.1	13.7	13.7
62056	32.8N	21.8E	625	S8	36	0	0	0	0.7	-5.4	5.4
63170	9.5N	44.1E	1326	M	31	0	0	90	0.7	7.1	7.1
63175	9.5N	45.6E	1032	M	26	0	0	0	0.7	7.3	7.3
63602	3.1N	30.9E	1204	S	30	29	97	0	0.0	10.1	10.1
63680	0.3N	32.6E	1144	S	23	0	0	0	0.7	-8.1	8.1
63801	4.9S	29.6E	882	S8	40	0	0	0	0.8	8.3	8.3
67250	15.6S	32.8E	882	S8	61	58	95	0	0.8	1.1	1.4
68030	18.5S	25.6E	1071	8	87	0	0	0	0.9	4.9	5.0
68038	20.5S	26.0E	903	8	82	0	0	1	1.1	4.1	4.2
68338	26.9S	24.6E	1234	S8	60	60	100	0			
68396	26.5S	31.3E	641	S8	57	0	0	0	0.8	4.8	4.9
68575	30.0S	30.0E	1175	S8	122	122	100	0			

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
30554	54.5N	113.6E	995	MS	123	1	1	0	4.9	5.0	7.0
30967	49.9N	115.8E	623	MS	87	1	1	1	1.2	-5.4	5.5
40726	36.8N	45.7E	1384	MS	82	1	1	2	1.0	4.3	4.4
40741	36.6N	61.2E	235	MS	83	0	0	0	0.6	-4.2	4.2
41254	23.1N	57.7E	1755	S8	85	84	99	0	0.0	-1.8	1.8
41396	16.0N	48.9E	700	M	59	2	3	0	0.9	6.2	6.3
41466	13.7N	44.1E	1402	8	58	0	0	0	0.8	-6.2	6.3
44416	28.6N	81.6E	720	MS	62	0	0	2	1.7	4.9	5.2
47022	40.8N	128.2E	1200	S	95	2	2	5	2.0	4.7	5.1
51495	43.5N	91.6E	874	M	124	0	0	2	1.3	6.5	6.6
52602	38.8N	93.4E	2734	S	124	0	0	0	1.0	-5.6	5.7
52955	35.6N	100.8E	3201	S	124	1	1	0	0.9	12.8	12.8
56146	31.6N	100.0E	339	S	124	124	100	0			
56444	28.5N	98.9E	3488	S	124	81	65	51	0.5	13.1	13.1
56462	29.0N	101.5E	2994	S	123	0	0	0	1.1	9.0	9.1

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	MS	42	0	0	0	0.9	-5.7	5.8
82181	2.0S	54.1W	146	MS	86	0	0	8	0.9	5.1	5.2
83214	10.3S	54.9W	285	MS	83	0	0	2	1.8	-9.3	9.5
83235	12.4S	46.4W	604	MS	93	1	1	4	1.4	6.2	6.4
83332	14.1S	46.4W	826	MS	93	57	61	0	0.7	14.1	14.1
83408	14.3S	43.8W	447	MS	89	2	2	0	0.7	11.3	11.3
83488	17.8S	42.9W	1097	MS	91	91	100	0			
83531	18.6S	46.5W	940	MS	89	0	0	1	1.3	-7.3	7.4
83579	19.6S	46.9W	1004	MS	92	0	0	0	0.7	-4.2	4.3
83587	19.9S	43.9W	850	MS	92	1	1	1	0.9	-7.7	7.8
83773	23.1S	48.9W	793	MS	91	0	0	1	1.2	-11.1	11.2
83836	25.5S	50.6W	837	MS	93	1	1	0	0.7	-5.6	5.6
83953	30.9S	55.5W	231	MS	93	1	1	5	1.4	-11.2	11.3
84377	3.8S	73.3W	125	MS	120	0	0	0	0.9	5.0	5.1
84401	5.2S	80.6W	49	MS	118	0	0	0	1.3	6.3	6.4
84425	5.9S	76.1W	179	MS	22	0	0	0	1.5	4.6	4.8
84455	6.5S	76.4W	281	MS	87	0	0	1	1.4	7.3	7.4
84472	7.1S	78.5W	2620	S	60	0	0	0	1.1	-5.2	5.3
84474	7.2S	76.7W	350	S	25	1	4	0	1.0	9.9	10.0
84501	8.1S	79.0W	26	MS	86	0	0	0	0.8	4.2	4.3

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
84628	12.0S	77.1W	12	MS	122	0	0	0	0.7	4.0	4.1
84686	13.6S	72.0W	3248	S	117	0	0	0	1.2	-4.5	4.7
84688	13.7S	73.4W	3444	S	52	2	4	0	0.5	-13.0	13.0
84720	14.9S	75.0W	567	MS	62	0	0	0	0.9	4.8	4.9
84782	18.1S	70.3W	468	MS	92	0	0	0	1.7	8.7	8.9
85140	14.3S	67.4W	140	MS	59	1	2	2	1.5	4.5	4.7
85264	18.5S	64.1W	1998	S	59	59	100	0			
85312	19.8S	63.9W	992	S	51	2	4	0	1.0	5.5	5.6
85406	18.3S	70.3W	55	M	124	0	0	0	1.3	5.2	5.4
85418	20.5S	70.2W	48	M	122	0	0	0	1.0	4.1	4.2
85432	22.5S	68.9W	2320	S8	83	0	0	0	0.8	5.0	5.1
85836	43.6S	71.8W	277	M	47	0	0	0	2.0	4.5	4.9

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
71049	66.0N	91.8W	150	MS	30	14	47	100	0.7	13.8	13.8
71747	48.8N	91.6W	424	MS	121	0	0	7	0.7	4.1	4.2
72327	36.1N	86.7W	182	MS	121	0	0	0	0.6	4.4	4.4
72376	35.2N	111.8W	2192	M	105	0	0	0	1.3	4.9	5.1
76118	30.4N	109.7W	1040	MS	32	0	0	0	1.0	-10.0	10.0
76743	18.0N	92.9W	10	MS	87	0	0	1	1.4	6.6	6.7
76903	14.9N	92.3W	118	MS	103	0	0	0	0.8	6.6	6.6

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
92010	6.1S	145.4E	1587	M	51	0	0	2	1.4	9.7	9.8
92036	2.4S	147.4E	1	8	235	235	100	0			
94130	14.8S	131.9E	120	MS	98	0	0	0	0.9	5.6	5.7
95815	35.1S	144.0E	72	MS	124	0	0	54	3.2	4.8	5.8
96505	3.7N	115.7E	227	MS	21	20	95	0	0.0	1.7	1.7
97378	10.7S	123.1E	1	MS	33	32	97	0	0.0	-14.4	14.4

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
04416	72.6N	38.4W	3202	S	114	1	1	0	0.6	-5.7	5.7
06685	47.0N	9.1E	515	MS	124	0	0	1	0.9	6.0	6.1
10557	50.5N	11.1E	845	S8	372	372	100	0			
12140	54.4N	18.7E	2	MS	120	0	0	0	0.5	7.8	7.8
13269	44.3N	19.9E	176	MS	122	0	0	1	1.0	8.1	8.2
14554	44.9N	18.4E	140	S	53	0	0	0	0.9	-12.3	12.3
14650	43.8N	18.0E	972	S	60	60	100	0			
15284	45.6N	26.4E	1632	S8	22	1	5	59	1.4	4.1	4.3
16344	39.3N	16.4E	1710	S8	20	0	0	65	0.8	4.3	4.4
17092	39.8N	39.5E	1218	S8	123	0	0	0	1.4	6.9	7.0
17203	38.9N	40.5E	1177	S8	123	0	0	0	1.0	7.1	7.2
40296	31.0N	35.5E	-350	M	116	0	0	1	1.5	4.3	4.6

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89004	71.7S	2.8W	815	MS	102	0	0	0	1.9	-6.0	6.3
89263	66.0S	66.1W	20	M	245	0	0	17	2.7	7.5	8.0
89264	71.4S	68.9W	780	S	265	0	0	0	1.5	6.7	6.9
89266	72.2S	60.3W	91	S	263	53	20	0	3.2	-4.0	5.1
89272	74.8S	71.5W	1369	S	255	255	100	0			

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89612	66.3S	110.8E	390	S	240	181	75	10	1.3	-1.3	1.8
89627	77.2S	123.5E	3084	S	389	231	59	0	0.7	-14.2	14.2
89637	69.9S	130.0E	2560	S	317	269	85	0	0.5	14.2	14.2
89744	74.0S	43.0E	3353	S	286	0	0	0	0.9	8.0	8.1
89769	78.5S	168.4E	50	M	402	402	100	0			
89847	67.6S	146.0E	30	S	326	10	3	0	2.0	-9.2	9.4
89872	78.0S	170.8E	45	S	25	7	28	72	7.8	2.5	8.2

TABLE 4A

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: August 2001

Monitoring procedures

Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from UKMO global model.
Observation times		:All hours combined.
Level(s) monitored		:300.0 - 150.0 hPa
Elements monitored		:TEMP in °C ; WIND in m s^{-1}
Parameters monitored	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.
GROSS ERROR LIMITS		:10.0 °C ; 60 m s^{-1} Vector Wind
SELECTION CRITERIA		:N REP ≥ 20

NB: All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAA	43	0	53	0.9	0.3	44	0	55	0	10.1	2.3
AAH	1872	1	39	1.2	0.3	1853	0	40	0	5.0	0.6
AAL	6995	0	21	1.4	0.2	6942	0	21	0	6.2	0.7
AAR	1832	0	5	1.6	-0.4	1797	0	6	0	7.3	0.7
ACA	4196	0	7	1.7	0.0	4184	0	7	0	7.2	0.7
ACI	34	3	53	1.3	0.0	34	0	53	0	6.5	0.0
AEA	1031	1	5	1.7	0.6	998	0	4	0	6.9	1.0
AEL	806	0	8	1.5	-0.5	809	0	9	0	6.6	0.8
AFL	798	1	4	2.2	1.0	796	0	3	0	7.2	0.7
AFR	1888	1	5	1.5	0.3	1894	0	6	0	6.8	0.9
AIH	242	1	5	1.7	0.2	238	0	4	0	8.1	1.0
AJM	272	0	5	1.6	0.0	274	0	4	0	6.4	1.0
ALM	133	0	5	1.4	0.8	132	0	9	0	7.1	0.7
AMM	112	0	2	1.2	0.7	108	0	5	0	7.5	0.7
AMT	1438	1	41	1.5	0.8	1442	0	41	0	5.6	0.6
AMX	296	2	6	1.5	0.4	295	0	7	0	9.7	1.0
ANA	1179	1	10	1.7	0.9	1166	0	11	0	7.4	1.0
ANZ	5647	0	33	1.4	0.2	5614	0	33	0	6.4	1.1
AVA	424	0	3	1.7	0.9	422	0	4	0	7.0	1.0
AVE	362	1	3	1.6	1.1	356	0	4	0	8.6	2.3
AVN	118	0	49	1.2	0.5	122	0	50	0	7.7	0.8
AZA	722	1	12	2.8	0.8	709	0	6	0	8.7	1.0
BAL	222	1	8	1.5	-0.2	221	0	7	0	6.3	0.8
BAW	1134	0	5	1.9	0.4	1128	0	6	0	6.6	0.8
BBB	55	0	0	1.4	0.7	54	0	2	0	5.3	0.2
BLX	38	0	3	1.6	0.4	38	0	3	0	6.8	0.0
BWA	295	2	100	3.3	2.6	292	0	4	0	7.5	1.1
CAL	382	1	4	1.7	0.3	381	0	4	0	8.0	0.9
CCA	287	1	14	2.3	0.7	314	0	100	0	11.0	-0.1
CES	496	1	7	1.7	0.5	498	1	10	0	9.7	0.0
CFC	20	0	5	2.0	0.7	23	0	9	0	7.2	1.5
CFG	1007	0	3	1.4	-0.5	998	0	3	0	7.1	0.9
CLX	493	0	6	1.6	0.1	503	0	7	0	6.4	0.3
CMI	200	1	4	2.2	0.3	188	1	4	0	8.4	2.2
CMM	761	1	7	1.5	0.0	757	0	7	0	6.9	0.9
COA	1508	0	30	1.3	0.2	1503	0	32	0	7.6	1.0
CPA	25	4	16	1.2	0.4	25	0	12	0	4.6	1.1
CRL	864	0	5	1.5	0.5	854	0	6	0	7.3	0.9
CSN	116	0	8	1.7	0.3	115	1	10	0	9.6	0.8
CTB	113	0	3	1.2	0.6	115	0	3	0	5.8	0.7
CUB	386	1	5	2.4	1.5	381	0	3	0	7.1	0.7
DAF	27	0	7	1.2	0.3	26	0	8	0	5.9	2.2
DAL	3547	0	37	1.2	-0.1	3556	0	37	0	5.6	0.5
DLH	1796	0	8	1.6	0.3	1771	0	8	0	6.3	0.9
EDW	31	0	3	1.9	0.3	33	3	3	0	4.6	1.4
EEZ	38	0	8	1.1	0.8	38	0	8	0	5.7	1.2
EIA	194	0	36	1.5	-0.1	192	0	43	0	10.8	2.4
EIN	54	0	0	1.6	0.7	57	0	2	0	6.1	2.1
ELY	202	0	4	1.7	0.1	200	0	5	0	7.2	0.7
ETH	46	0	11	1.1	-0.3	45	0	16	0	8.6	-0.2
EVA	845	0	4	1.4	-0.2	868	0	5	0	7.7	0.6
EWW	132	4	6	1.5	0.2	136	1	3	0	6.8	1.6
FDX	2151	0	41	1.4	0.5	2166	0	42	0	7.5	1.1
FIN	402	0	2	1.6	0.5	393	0	3	0	7.0	1.1
FJI	778	1	47	1.3	0.3	757	1	46	0	6.8	0.4
FOM	623	0	29	1.4	-0.1	620	0	30	0	7.3	1.5
GAF	86	1	3	1.7	-0.3	86	0	5	0	6.6	1.3
GCO	140	1	6	1.7	0.5	145	0	100	0	15.6	3.5
GHA	143	0	8	1.5	-0.2	138	0	12	0	10.7	2.9

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
GIA	23	0	22	1.3	0.3	23	0	22	0	4.8	1.9
GRL	47	0	0	1.5	0.5	46	0	0	0	4.5	-0.1
GTI	225	0	3	1.7	-0.3	229	0	6	0	7.5	0.8
HAL	4452	0	36	1.3	0.2	4373	0	36	0	7.4	1.5
HLN	65	0	0	1.2	0.0	65	0	2	0	6.0	1.3
HVN	66	0	5	1.8	0.7	66	0	3	0	6.1	1.1
IBE	3754	1	7	1.7	0.7	3661	0	7	0	7.3	1.0
ICE	1160	0	3	1.7	0.1	1110	0	3	0	7.0	1.2
IDE	30	0	3	2.0	1.0	30	0	3	0	7.2	-0.5
IWD	207	1	5	1.3	-0.2	201	0	5	0	8.1	1.7
JAA	132	1	14	2.3	1.4	129	0	13	0	6.6	2.2
JAL	5964	0	4	1.6	0.3	5899	0	5	0	7.3	0.8
JAZ	1288	1	5	1.8	1.2	1261	0	5	0	7.0	0.9
JKK	514	1	3	1.4	0.3	482	0	5	0	7.1	0.3
JMC	85	1	6	1.5	-0.2	80	0	6	0	6.9	1.3
KAL	4054	0	7	1.6	0.1	4002	0	7	0	7.6	0.5
KLM	2374	0	5	1.6	0.3	2375	0	6	0	6.6	0.9
LAN	82	6	45	2.8	-0.3	87	0	43	0	14.6	2.8
LAP	57	2	44	2.4	1.3	55	0	40	0	8.5	0.1
LDA	44	2	2	1.1	0.1	43	0	2	0	8.4	1.1
LDI	710	1	5	1.4	-0.4	702	0	5	0	7.4	0.6
LIB	1331	2	10	1.7	0.9	1334	0	9	0	6.6	0.9
LOT	247	1	3	1.7	-1.0	243	0	3	0	6.9	0.6
LTU	982	0	5	1.6	0.1	967	0	5	0	6.4	0.7
LXR	99	1	12	1.8	0.8	97	3	20	0	12.4	1.6
MAS	479	1	4	1.6	0.6	501	0	4	0	7.0	0.6
MDA	24	0	4	2.1	0.3	23	0	0	0	4.5	-0.1
MMZ	85	0	6	1.8	0.9	86	0	6	0	8.9	2.5
MON	78	5	6	1.5	0.1	78	0	1	0	6.3	1.1
MPD	689	1	4	1.4	0.1	682	0	4	0	6.4	0.7
MPH	562	1	3	1.6	-0.7	563	0	3	0	6.0	0.6
NCA	669	1	2	1.8	0.4	661	0	2	0	7.3	0.6
NWA	11105	0	8	1.6	0.5	11082	0	8	0	7.3	0.7
NZL	3639	0	12	1.4	0.1	3639	0	12	0	4.9	0.5
OAE	566	1	40	1.5	0.4	564	0	40	0	7.1	1.5
PAC	376	1	28	1.5	0.0	368	1	27	0	6.1	0.6
PAL	1498	0	7	1.5	0.3	1384	0	8	0	8.6	0.6
PAO	376	1	57	1.7	-0.3	369	0	56	0	8.5	1.3
PIC	79	0	1	1.1	0.2	75	0	1	0	8.4	-0.1
PUA	36	0	44	3.9	0.7	36	0	36	0	12.7	3.0
QFA	4782	0	61	1.3	0.3	4772	0	61	0	5.7	0.8
RAF	37	0	0	2.0	1.3	37	0	3	0	9.0	1.4
RAM	171	0	3	1.2	-0.9	167	0	5	0	7.8	0.4
RCH	296	0	100	3.1	-0.8	300	0	100	0	10.6	2.8
RKA	101	2	6	1.2	-0.3	101	0	6	0	7.2	1.5
RRR	139	1	7	1.6	0.4	138	1	7	0	7.2	0.5
RYN	543	0	40	1.2	0.6	560	0	40	0	4.4	0.4
RZO	629	0	2	1.5	-0.3	622	0	2	0	6.5	0.6
SAA	439	1	3	1.5	0.1	436	0	5	0	6.9	1.2
SAS	26	0	0	1.4	0.2	24	0	0	0	3.2	-0.1
SIA	462	0	3	1.6	0.5	482	0	2	0	5.5	0.7
SLR	122	0	8	1.6	0.7	121	0	10	0	7.3	1.3
SOL	21	0	0	0.8	0.0	21	0	5	0	10.4	1.3
SQC	50	0	2	1.8	0.8	49	0	0	0	5.7	0.8
SSV	41	0	2	1.1	0.3	44	5	7	0	9.8	0.1
SVA	74	1	7	1.5	0.4	81	1	12	0	10.3	-1.0
SWR	24	0	13	1.2	-0.3	24	0	38	0	17.7	8.5
TAM	76	8	24	2.2	0.5	76	0	100	0	14.3	0.9
TAP	1066	0	3	1.4	-0.1	1046	0	2	0	6.0	0.6

IDENT.	TEMPERATURE					WIND					
	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
THA	268	0	8	1.5	-0.3	264	0	12	0	9.4	0.0
THT	108	0	73	1.6	0.4	106	0	30	0	6.9	0.6
TPA	22	0	0	0.8	0.5	24	0	0	0	4.4	-0.8
TSC	295	0	2	2.0	0.4	293	0	3	0	9.3	1.2
TWA	1465	0	31	1.2	0.2	1458	0	31	0	5.4	1.0
UAL	165474	0	100	1.0	0.0	165310	0	100	0	4.5	0.4
UPS	1928	0	47	1.6	0.5	1932	0	47	0	6.6	0.9
USA	131	2	5	1.5	0.3	116	0	3	0	6.6	1.0
VIR	509	1	3	1.8	0.1	508	1	4	0	8.5	0.9
VPB	30	0	23	1.8	0.4	30	0	23	0	3.8	0.9
VRG	229	1	24	2.3	0.5	227	0	100	0	10.7	1.7
VVR	48	0	33	2.8	2.2	49	0	35	0	13.2	3.6
WOA	220	0	4	1.5	0.7	248	0	6	0	7.1	1.7
YSS	270	1	6	1.6	1.3	269	0	5	0	6.5	1.2
AR	154	0	100	2.6	2.5	154	0	3	0	5.5	0.9
AU	64458	0	14	1.2	0.5	64460	0	14	0	5.2	0.6
EU	116478	0	34	1.3	0.4	116478	0	34	0	4.7	0.4
KL	4931	0	57	1.5	1.0	4897	0	9	0	5.0	1.0
LH	3427	0	7	1.8	1.3	3395	0	7	0	5.7	0.7
MK	6135	0	84	2.1	1.7	6081	0	6	0	6.7	1.2
SA	5424	0	49	2.1	1.3	5422	0	24	0	8.6	1.0
SV	2701	7	83	3.0	2.7	2672	1	6	0	7.5	0.3
WA	319	9	16	1.5	0.6	315	7	46	0	7.7	-0.7
XX	3858	2	8	1.3	0.5	3817	0	9	0	8.3	1.4
N	712	3	26	2.2	0.8	723	0	22	0	6.5	0.9
US ACARS	968423	1	57	1.2	0.5	968415	0	55	0	5.0	0.7

TABLE 4B

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: August 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :All hours combined.

Level(s) monitored :1000.0 – 300.1 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

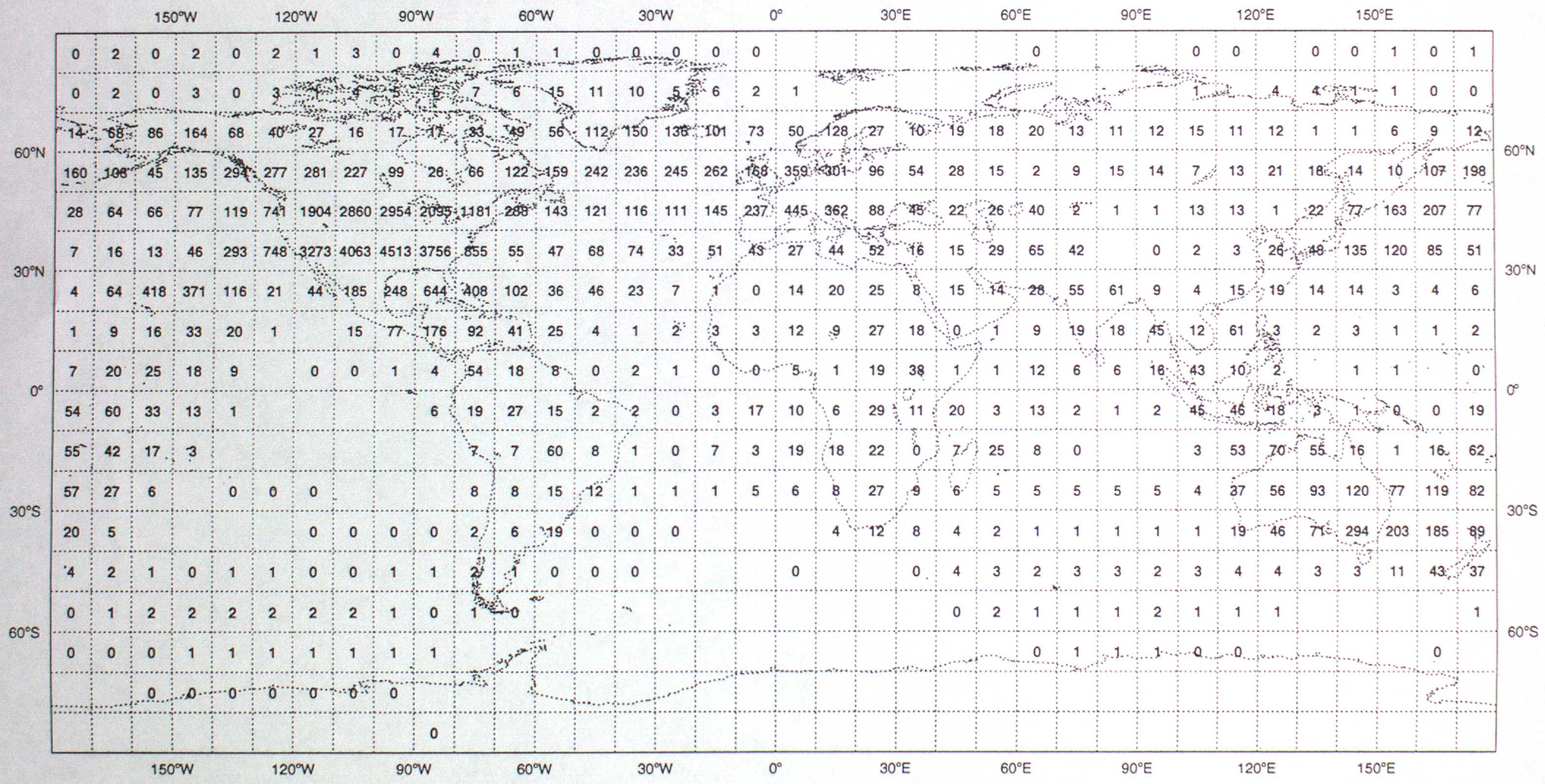
SELECTION CRITERIA :N REP $\geq$ 20

NB: All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	139	0	17	0.9	0.0	137	0	17	0	7.9	1.0
ACI	29	0	59	1.4	-0.5	31	0	61	0	14.8	4.1
AFL	23	0	13	3.7	2.1	24	0	4	0	5.6	-0.4
AFR	55	2	13	2.2	0.4	54	0	6	0	4.6	0.9
ANZ	196	6	28	1.5	-0.3	196	1	26	0	7.5	1.7
AXF	37	0	27	0.9	0.0	38	3	32	0	5.4	0.8
BAF	62	5	6	0.9	0.3	65	0	3	0	7.9	0.1
CFC	100	6	10	1.1	0.7	100	1	7	0	6.1	0.4
CFG	48	2	4	1.4	-0.4	45	0	4	0	6.5	0.7
CLX	26	4	8	1.4	-0.6	27	0	4	0	4.4	0.4
CMI	73	1	10	2.6	-1.0	71	0	3	0	8.2	1.2
COA	211	0	36	1.3	0.3	209	0	36	0	7.1	0.8
CRL	48	6	19	0.9	0.4	44	0	14	0	4.9	0.6
CUB	51	4	8	2.2	1.1	50	0	4	0	7.5	0.2
DAF	39	0	3	2.5	1.3	37	0	3	0	6.5	2.2
DAL	244	1	51	1.5	0.1	244	1	50	0	4.4	0.9
DHL	52	0	33	5.6	-5.6	52	0	19	0	12.5	1.8
DLH	122	1	12	1.3	0.5	119	0	13	0	7.7	0.5
EVA	87	0	31	1.2	-0.6	86	0	31	0	4.9	1.8
EWW	40	0	0	1.3	0.5	41	0	5	0	8.8	1.7
FDX	375	1	25	1.5	0.8	386	0	24	0	5.9	1.2
FIN	29	0	7	2.3	-0.5	28	0	11	0	7.0	1.1
FJI	31	0	39	1.5	1.3	31	0	42	0	12.6	1.2
FXI	60	0	12	3.2	1.3	60	0	15	0	10.8	2.9
GAF	49	0	0	1.1	0.6	50	0	2	0	5.6	1.7
GCO	285	0	4	1.3	0.5	302	0	100	0	15.8	4.3
GHA	47	2	36	2.3	-0.3	44	0	41	0	10.5	2.9
HAL	97	3	42	1.1	0.4	91	0	43	0	7.6	2.2
IBE	85	5	24	2.1	0.8	84	0	19	0	9.5	2.5
ICE	89	0	0	1.2	-0.1	87	0	1	0	5.6	0.2
JAL	53	0	4	1.3	0.2	51	0	4	0	6.1	0.7
JAZ	143	2	6	1.9	1.1	135	0	3	0	6.0	0.5
KAL	43	5	26	2.5	0.0	42	0	19	0	6.2	-0.1
KIW	48	0	31	2.7	2.0	48	0	31	0	7.4	0.0
KLM	67	1	4	1.6	0.5	65	0	3	0	7.2	1.3
LAN	160	3	33	2.7	-0.3	169	1	30	0	9.9	2.5
LDI	34	3	12	1.0	-0.6	35	0	14	0	9.3	2.0
LIB	82	2	7	1.6	0.9	82	0	5	0	8.0	1.6
LTU	25	0	0	0.9	0.2	25	4	4	0	4.5	1.4
MAS	29	3	34	1.0	0.4	29	0	31	0	7.1	0.6
MPH	23	0	17	1.0	0.5	21	0	14	0	4.1	0.1
NAT	20	0	10	2.1	0.3	20	5	15	0	8.0	-0.4
NCA	64	0	0	1.6	0.4	64	0	0	0	6.6	0.7
NWA	311	1	7	1.6	0.7	306	0	8	0	8.0	1.0
NZL	20533	0	58	1.2	0.4	20533	0	58	0	4.7	0.5
PAL	68	3	9	1.2	-0.5	58	0	9	0	5.9	2.1
QFA	242	7	56	1.3	0.2	242	0	55	0	9.6	1.1
RCH	171	3	100	3.5	-1.5	163	1	100	0	12.9	3.2
RRR	165	2	16	4.3	3.4	164	0	7	0	6.5	0.9
SAA	52	2	12	2.2	-0.8	52	0	10	0	9.2	3.0
SIA	35	0	3	0.8	0.3	37	0	3	0	5.3	1.5
SWR	28	0	4	1.1	0.2	29	0	17	0	14.6	4.8
THA	20	0	0	1.1	0.5	20	0	15	0	13.1	1.3
UAL	310176	0	100	1.2	0.0	309738	0	100	0	3.8	0.4
UPS	90	4	31	1.5	0.7	93	0	27	0	5.9	1.5
VHJ	88	1	2	2.7	1.4	88	0	5	0	10.8	0.6
VVP	25	8	40	3.9	-0.7	28	0	21	0	9.3	4.5
VVR	31	0	42	0.8	-0.1	32	0	41	0	5.2	0.5

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AR	145	0	100	2.6	1.6	145	0	51	0	4.7	0.6
AU	102950	0	66	1.3	0.3	102951	0	66	0	4.4	0.3
EU	689704	0	75	1.0	0.2	689354	0	75	0	3.5	0.1
KL	4330	0	83	1.6	0.6	4315	0	56	0	3.7	0.3
LH	1098	0	59	1.2	0.5	1085	0	59	0	4.4	0.5
MK	4783	0	93	1.6	0.6	4753	0	53	0	4.6	0.6
SA	2561	0	63	1.6	0.4	2560	0	57	0	5.4	0.3
SV	5337	17	94	3.7	2.7	5280	17	60	0	5.9	1.6
WA	29	7	21	0.8	0.2	29	3	59	0	9.5	-2.4
XX	579	4	11	1.9	0.2	574	0	12	0	9.6	2.3
US ACARS	1396288	0	73	1.3	0.2	1392831	0	73	0	3.9	0.4

Figure 3a. AIRCRAFT 300 - 150 hPa mean daily count. AUGUST 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Global average number of observations in 24 hours = 46922



0	2	0	2	0	2	1	3	0	4	0	1	1	0	0	0	0	0							0				0	0		0	0	1	0	1
0	2	0	3	0	3	1	4	5	6	7	6	15	11	10	5	6	2	1										1		4	4	1	1	0	0
14	68	86	164	68	40	27	16	17	17	33	49	56	112	150	136	101	73	50	128	27	10	19	18	20	13	11	12	15	11	12	1	1	6	9	12
160	108	45	135	294	277	281	227	99	26	66	122	159	242	236	245	262	168	359	301	96	54	28	15	2	9	15	14	7	13	21	18	14	10	107	198
28	64	66	77	119	741	1904	2860	2954	2095	1181	288	143	121	116	111	145	237	445	362	88	45	22	26	40	2	1	1	13	13	1	22	77	163	207	77
7	16	13	46	293	748	3273	4063	4513	3756	855	55	47	68	74	33	51	43	27	44	52	16	15	29	65	42		0	2	3	26	48	135	120	85	51
4	64	418	371	116	21	44	185	248	644	408	102	36	46	23	7	1	0	14	20	25	8	15	14	28	55	61	9	4	15	19	14	14	3	4	6
1	9	16	33	20	1		15	77	176	92	41	25	4	1	2	3	3	12	9	27	18	0	1	9	19	18	45	12	61	3	2	3	1	1	2
7	20	25	18	9		0	0	1	4	54	18	8	0	2	1	0	0	5	1	19	38	1	1	12	6	6	16	43	10	2		1	1		0
54	60	33	13	1					6	19	27	15	2	2	0	3	17	10	6	29	11	20	3	13	2	1	2	45	46	18	3	1	0	0	19
55	42	17	3							7	7	60	8	1	0	7	3	19	18	22	0	7	25	8	0			3	53	70	55	16	1	16	62
57	27	6		0	0	0				8	8	15	12	1	1	1	5	6	8	27	9	6	5	5	5	5	5	4	37	56	93	120	77	119	82
20	5					0	0	0	0	2	6	19	0	0	0				4	12	8	4	2	1	1	1	1	1	19	46	71	294	203	185	89
4	2	1	0	1	1	0	0	1	1	2	1	0	0	0				0			0	4	3	2	3	3	2	3	4	4	3	3	11	43	37
0	1	2	2	2	2	2	2	1	0	1	0											0	2	1	1	1	2	1	1	1					1
0	0	0	1	1	1	1	1	1	1															0	1	1	1	0	0					0	
		0	0	0	0	0	0	0																											
									0																										

Figure 3b. AIRCRAFT 1000 - 301 hPa mean daily count. AUGUST 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Global average number of observations in 24 hours = 81888

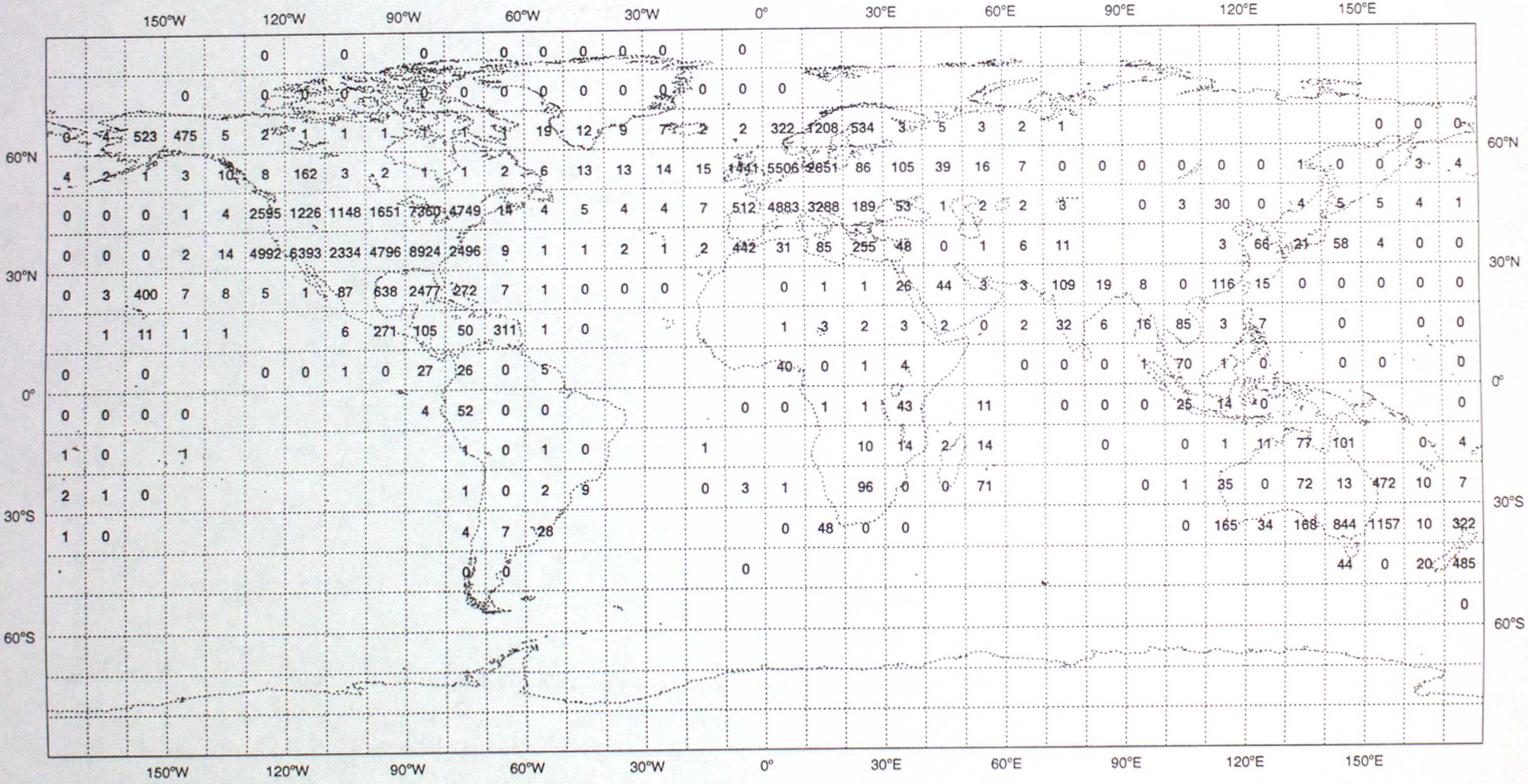

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 4 523 475 5 2 1 1 1 1 1 1 19 12 9 7 2 2 322 1208 534 3 5 3 2 1 0 0 0
4 2 1 3 10 8 162 3 2 1 1 2 6 13 13 14 15 1441 5506 2651 86 105 39 16 7 0 0 0 0 0 0 1 0 0 3 4
0 0 0 1 4 2595 1226 1148 1651 7360 4749 14 4 5 4 4 7 512 4883 3288 189 53 1 2 2 3 0 3 30 0 4 5 5 4 1
0 0 0 2 14 4992 6393 2334 4796 8924 2496 9 1 1 2 1 2 442 31 85 255 48 0 1 6 11 3 66 21 58 4 0 0
0 3 400 7 8 5 1 87 638 2477 272 7 1 0 0 0 0 1 1 26 44 3 3 109 19 8 0 116 15 0 0 0 0 0
1 11 1 1 6 271 105 50 311 1 0 1 3 2 3 2 0 2 32 6 16 85 3 7 0 0 0
0 0 0 0 1 0 27 26 0 5 40 0 1 4 0 0 0 1 70 1 0 0 0 0
0 0 0 0 4 52 0 0 0 0 1 1 43 11 0 0 0 25 14 0 0
1 0 1 1 0 1 0 1 10 14 2 14 0 0 1 11 77 101 0 4
2 1 0 1 0 2 9 0 3 1 96 0 0 71 0 1 35 0 72 13 472 10 7
1 0 4 7 28 0 48 0 0 0 165 34 168 844 1157 10 322
0 0 0 44 0 20 485
0

Figure 4a. AIRCRAFT 300 - 150 hPa mean winds. AUGUST 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

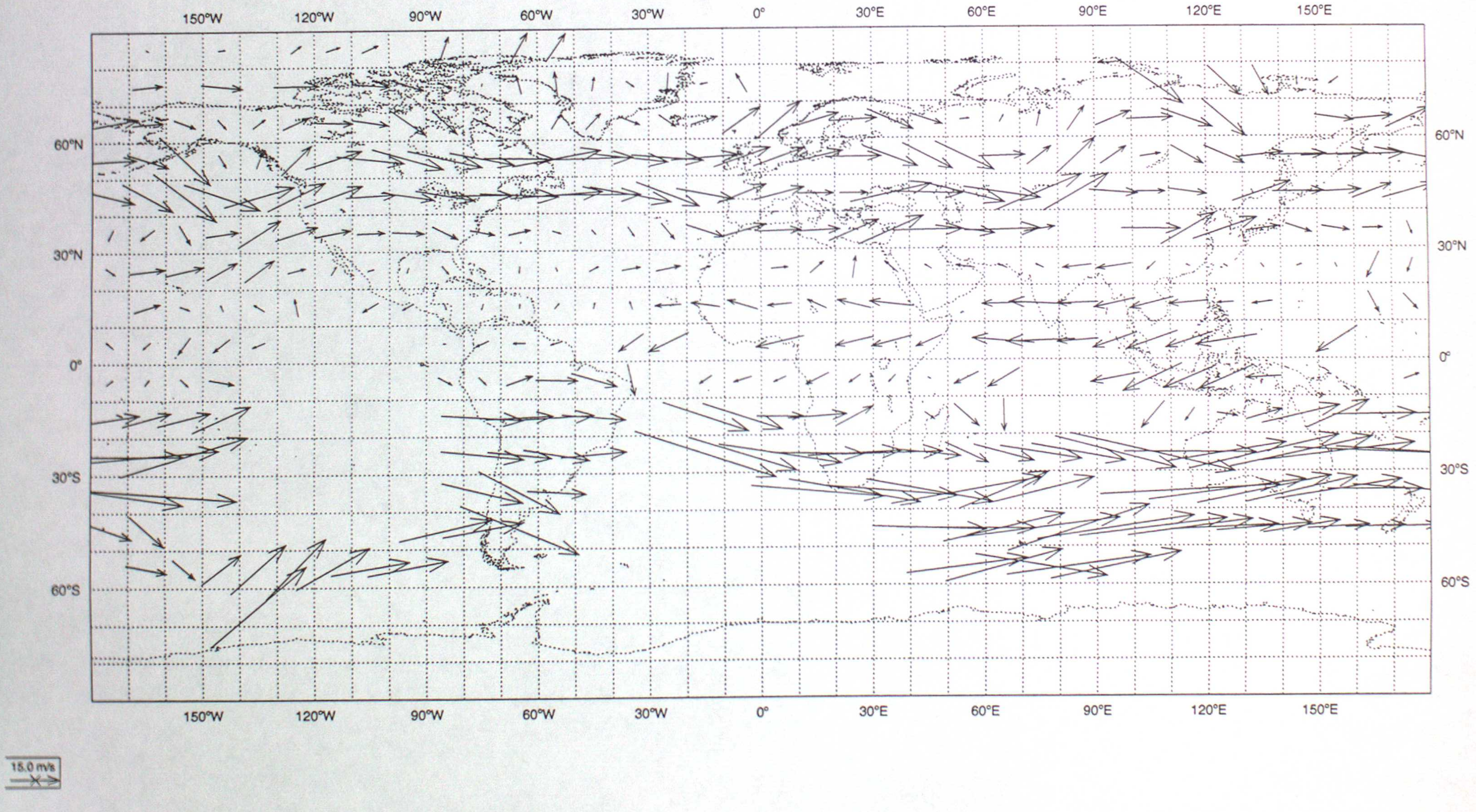

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0 m/s

Figure 4b. AIRCRAFT 1000 - 301 hPa mean winds. AUGUST 2001

Observations with O-B vector difference greater than 60 ms-1 excluded

Arrows are plotted where greater than 30 obs are present

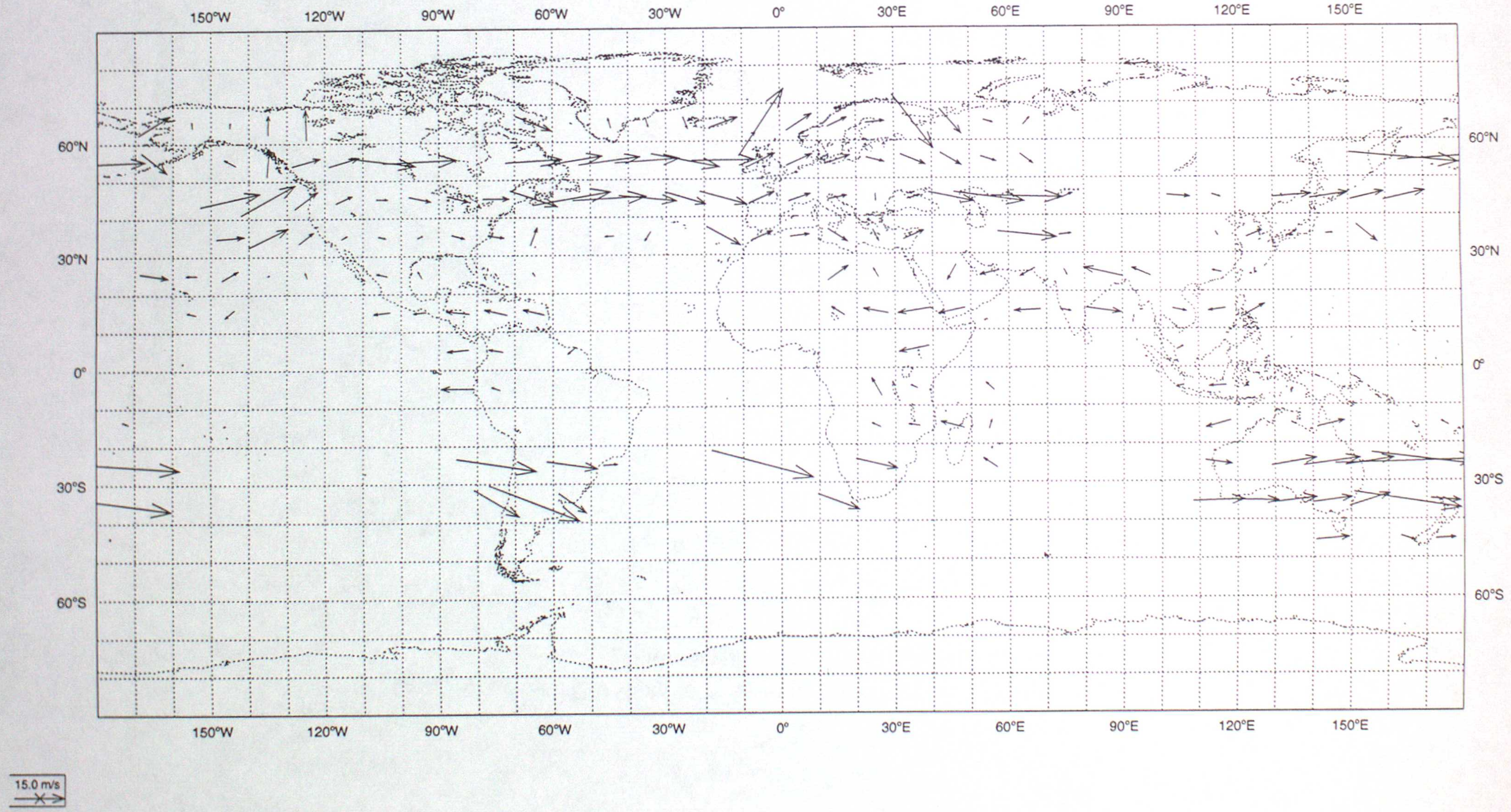

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0 m/s

Figure 5a. AIRCRAFT 300 - 150 hPa mean O-B winds. AUGUST 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

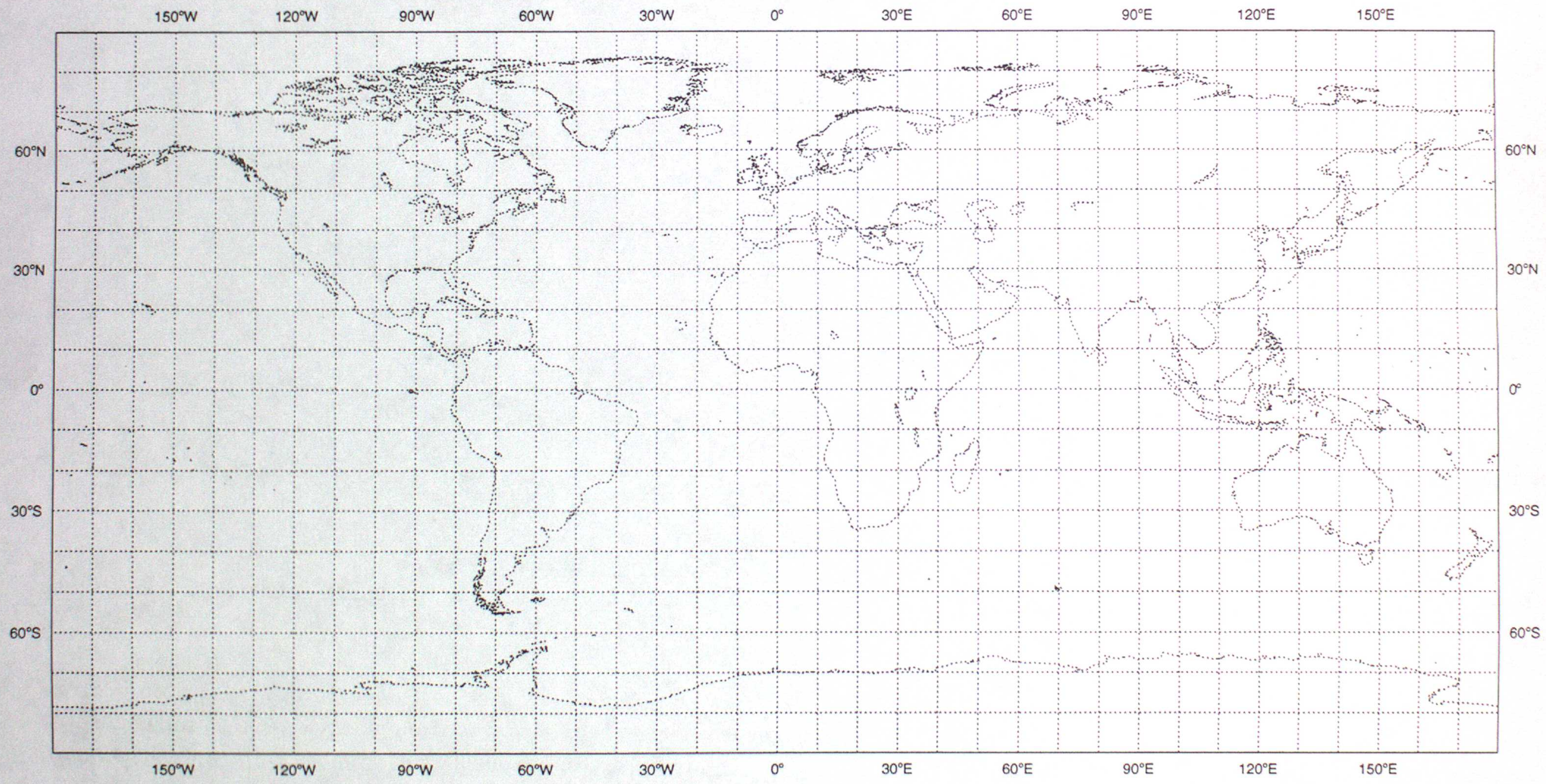

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

Figure 5b. AIRCRAFT 1000 - 301 hPa mean O-B winds. AUGUST 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

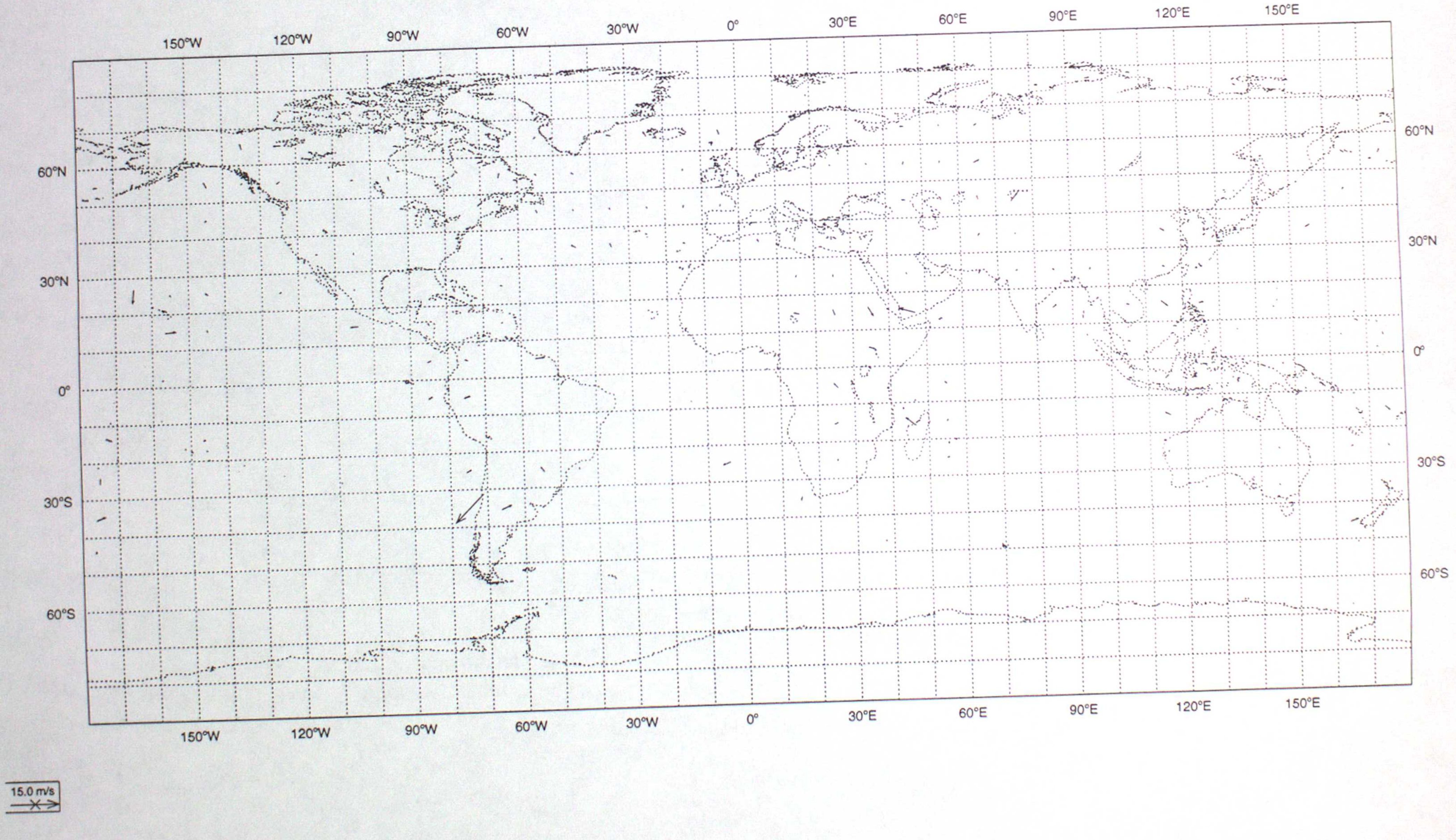

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0 m/s

Figure 6a. AIRCRAFT 300 - 150 hPa mean O-B speeds (ms-1). AUGUST 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

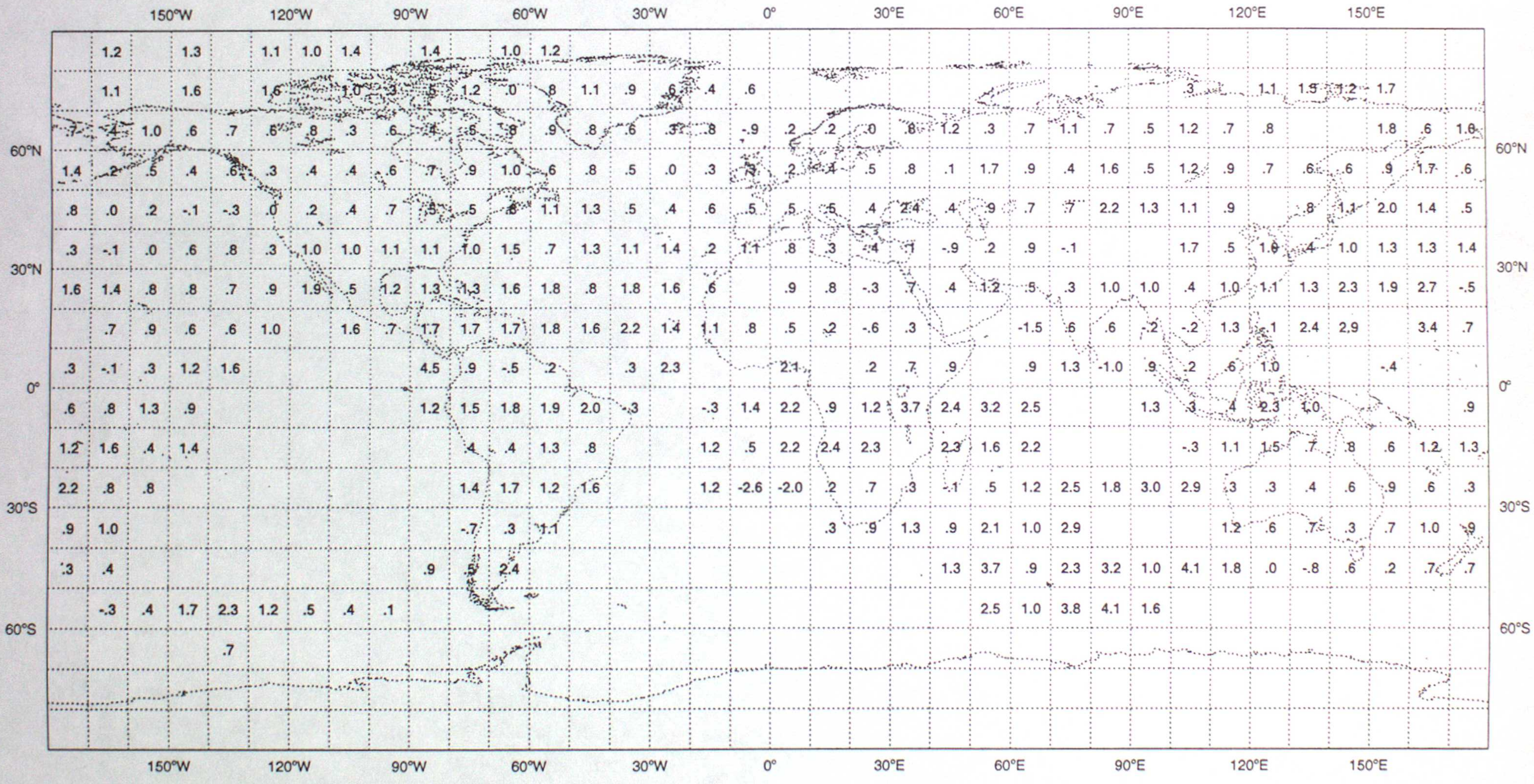

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
1.2 1.3 1.1 1.0 1.4 1.4 1.0 1.2
1.1 1.6 1.6 1.0 .3 .5 1.2 .0 .8 1.1 .9 .6 .4 .6 .3 1.1 1.5 1.2 1.7
.7 .4 1.0 .6 .7 .6 .8 .3 .6 .4 .5 .8 .9 .8 .6 .3 .8 -.9 .2 .2 .0 .8 1.2 .3 .7 1.1 .7 .5 1.2 .7 .8 1.8 .6 1.6
1.4 .2 .5 .4 .6 .3 .4 .4 .6 .7 .9 1.0 .6 .8 .5 .0 .3 .2 .2 .4 .5 .8 .1 1.7 .9 .4 1.6 .5 1.2 .9 .7 .6 .6 .9 1.7 .6
.8 .0 .2 -.1 -.3 .0 .2 .4 .7 .5 .5 .8 1.1 1.3 .5 .4 .6 .5 .5 .5 .4 2.4 .4 .9 .7 .7 2.2 1.3 1.1 .9 .8 1.1 2.0 1.4 .5
.3 -.1 .0 .6 .8 .3 1.0 1.0 1.1 1.1 1.0 1.5 .7 1.3 1.1 1.4 .2 1.1 .8 .3 .4 .1 -.9 .2 .9 -.1 1.7 .5 1.6 .4 1.0 1.3 1.3 1.4
1.6 1.4 .8 .8 .7 .9 1.9 .5 1.2 1.3 1.3 1.6 1.8 .8 1.8 1.6 .6 .9 .8 -.3 .7 .4 1.2 .5 .3 1.0 1.0 .4 1.0 1.1 1.3 2.3 1.9 2.7 -.5
.7 .9 .6 .6 1.0 1.6 .7 1.7 1.7 1.7 1.8 1.6 2.2 1.4 1.1 .8 .5 .2 -.6 .3 -1.5 .6 .6 -.2 -.2 1.3 .1 2.4 2.9 3.4 .7
.3 -.1 .3 1.2 1.6 4.5 .9 -.5 .2 .3 2.3 2.1 .2 .7 .9 .9 1.3 -1.0 .9 .2 .6 1.0 -.4
.6 .8 1.3 .9 1.2 1.5 1.8 1.9 2.0 .3 -.3 1.4 2.2 .9 1.2 3.7 2.4 3.2 2.5 1.3 .3 .4 2.3 1.0 .9
1.2 1.6 .4 1.4 .4 .4 1.3 .8 1.2 .5 2.2 2.4 2.3 2.3 1.6 2.2 -.3 1.1 1.5 .7 .8 .6 1.2 1.3
2.2 .8 .8 1.4 1.7 1.2 1.6 1.2 -2.6 -2.0 .2 .7 .3 -.1 .5 1.2 2.5 1.8 3.0 2.9 .3 .3 .4 .6 .9 .6 .3
.9 1.0 -.7 .3 1.1 .3 .9 1.3 .9 2.1 1.0 2.9 1.2 .6 .7 .3 .7 1.0 .9
.3 .4 .9 .5 2.4 1.3 3.7 .9 2.3 3.2 1.0 4.1 1.8 .0 -.8 .6 .2 .7 .7
-.3 .4 1.7 2.3 1.2 .5 .4 .1 2.5 1.0 3.8 4.1 1.6
.7

Figure 6b. AIRCRAFT 1000 - 301 hPa mean O-B speeds (ms-1). AUGUST 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

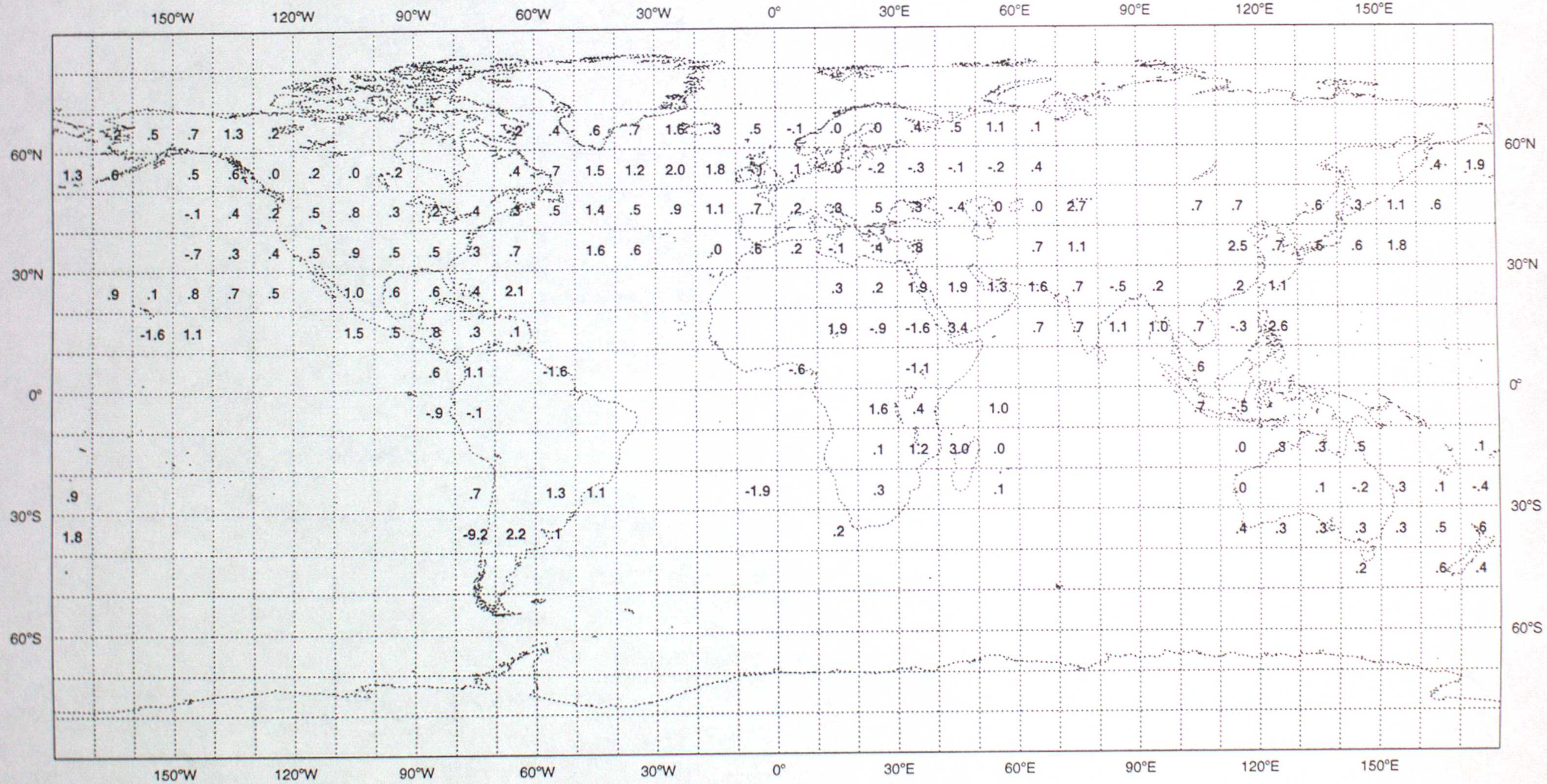
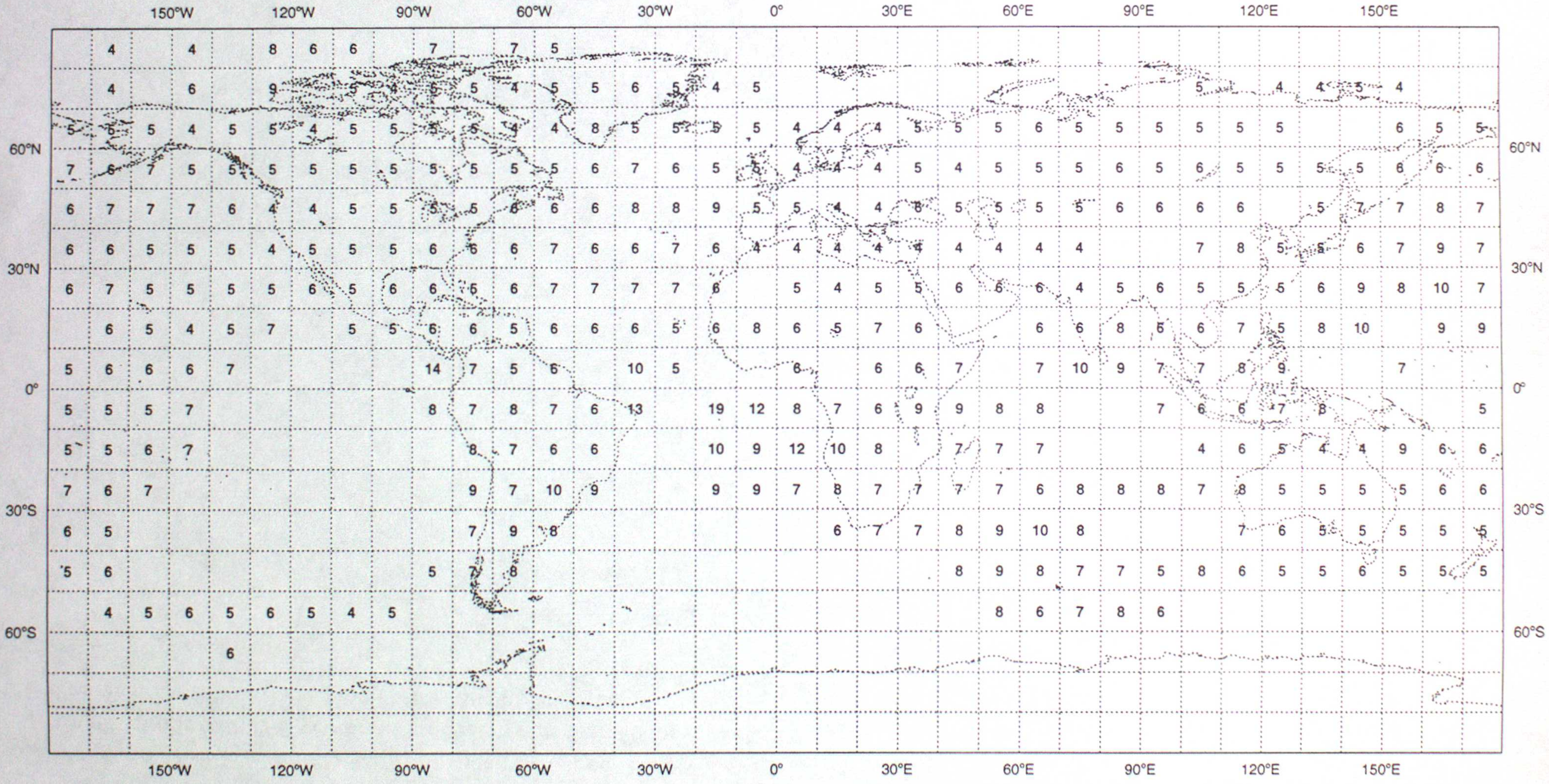

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
.2 .5 .7 1.3 .2 .2 .4 .6 .7 1.6 .3 .5 -.1 .0 .0 .4 .5 1.1 .1
1.3 .6 .5 .6 .0 .2 .0 -.2 .4 .7 1.5 1.2 2.0 1.8 .1 .1 .0 -.2 -.3 -.1 -.2 .4 .4 1.9
-.1 .4 .2 .5 .8 .3 .2 .4 .3 .5 1.4 .5 .9 1.1 .7 .2 .3 .5 .3 -.4 .0 .0 2.7 .7 .7 .6 .3 1.1 .6
-.7 .3 .4 .5 .9 .5 .5 .3 .7 1.6 .6 .0 .6 .2 -.1 .4 .8 .7 1.1 2.5 .7 .5 .6 1.8
.9 .1 .8 .7 .5 1.0 .6 .6 .4 2.1 .3 .2 1.9 1.9 1.3 1.6 .7 -.5 .2 .2 1.1
-1.6 1.1 1.5 .5 .8 .3 .1 1.9 -.9 -1.6 3.4 .7 .7 1.1 1.0 .7 -.3 2.6
.6 1.1 -1.6 -.6 -1.1 .6
-.9 -.1 1.6 .4 1.0 .7 .5
.1 1.2 3.0 .0 .0 .3 .3 .5 .1
.9 .7 1.3 1.1 -1.9 .3 .1 .0 .1 -.2 .3 .1 -.4
1.8 -9.2 2.2 .1 .2 .4 .3 .3 .3 .3 .5 .6
.2 .6 .4

Figure 7a. AIRCRAFT 300 - 150 hPa RMS O-B vector (ms-1). AUGUST 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present


150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S
4 4 8 6 6 7 7 5
4 6 9 5 5 4 5 5 6 5 4 5 5 4 4 5 4
5 5 5 4 5 5 4 5 5 5 5 4 8 5 5 5 5 4 4 4 5 5 5 6 5 5 5 5 5 5 6 5 5
7 6 7 5 5 5 5 5 5 5 5 5 6 7 6 5 5 4 4 4 5 4 5 5 5 6 5 6 5 5 5 5 6 6 6
6 7 7 7 6 4 4 5 5 5 5 6 6 6 8 8 9 5 5 4 4 8 5 5 5 5 6 6 6 6 5 7 7 8 7
6 6 5 5 5 4 5 5 5 6 6 6 7 6 6 7 6 4 4 4 4 4 4 4 4 4 7 8 5 5 6 7 9 7
6 7 5 5 5 5 6 5 6 6 5 6 7 7 7 7 6 5 4 5 5 6 6 6 4 5 6 5 5 5 6 9 8 10 7
6 5 4 5 7 5 5 6 6 5 6 6 6 5 6 8 6 5 7 6 6 6 8 5 6 7 5 8 10 9 9
5 6 6 6 7 14 7 5 6 10 5 6 6 6 7 7 10 9 7 7 8 9 7
5 5 5 7 8 7 8 7 6 13 19 12 8 7 6 9 9 8 8 7 6 6 7 8 5
5 5 6 7 8 7 6 6 10 9 12 10 8 7 7 7 4 6 5 4 4 9 6 6
7 6 7 9 7 10 9 9 9 7 8 7 7 7 7 6 8 8 8 7 8 5 5 5 5 6 6
6 5 7 9 8 6 7 7 8 9 10 8 7 6 5 5 5 5 5
5 6 5 7 8 8 9 8 7 7 5 8 6 5 5 6 5 5 5
4 5 6 5 6 5 4 5 8 6 7 8 6
6

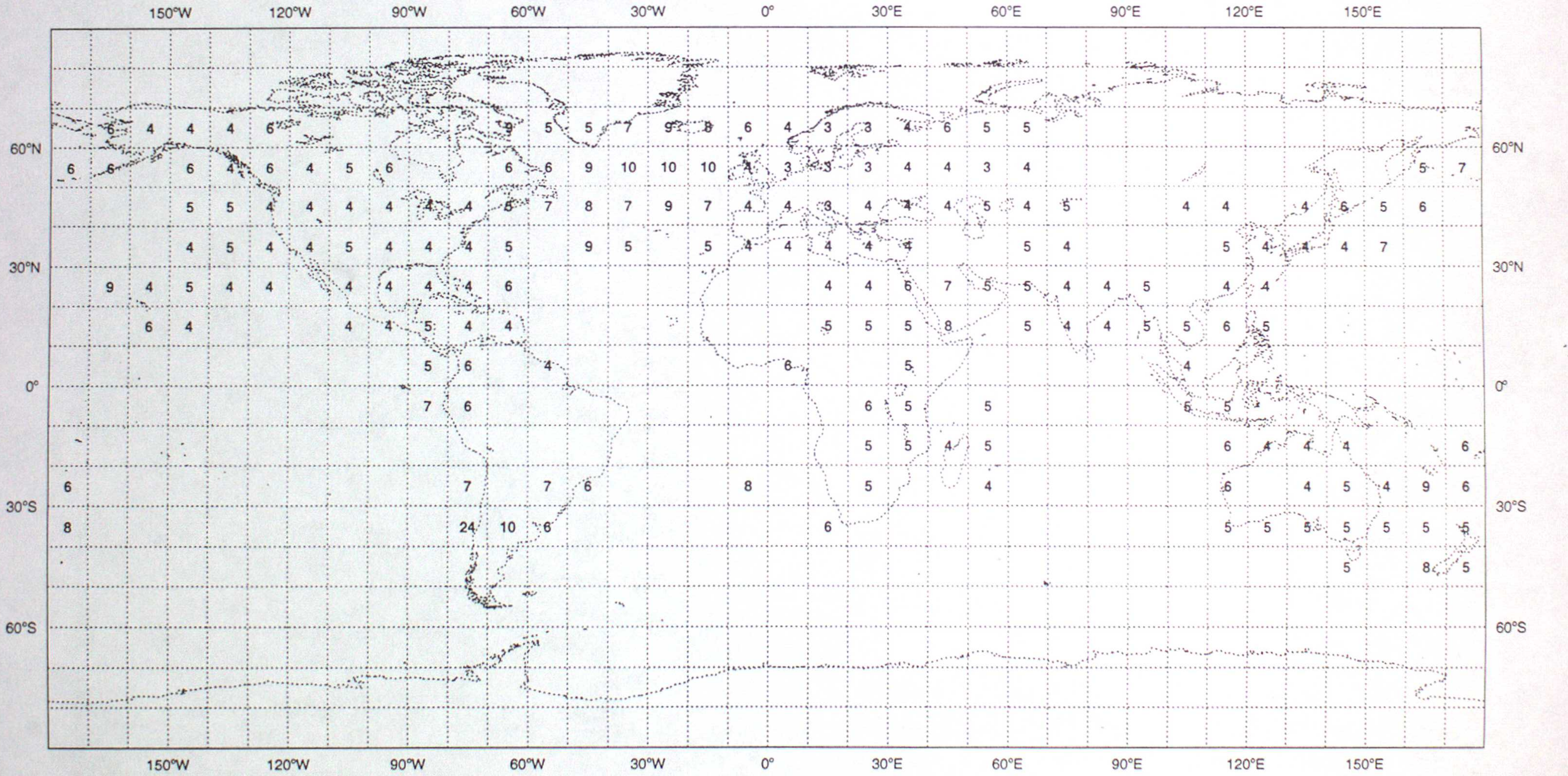

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
6 4 4 4 6 9 5 5 7 9 8 6 4 3 3 4 6 5 5
6 6 6 4 6 4 5 6 6 6 9 10 10 10 4 3 3 3 4 4 3 4 5 7
5 5 4 4 4 4 4 4 5 7 8 7 9 7 4 4 3 4 4 4 5 4 5 4 4 4 6 5 6
4 5 4 4 5 4 4 4 5 9 5 5 4 4 4 4 4 5 4 5 4 4 4 7
9 4 5 4 4 4 4 4 4 6 4 4 6 7 5 5 4 4 5 4 4
6 4 4 4 5 4 4 5 5 5 8 5 4 4 5 5 6 5
5 6 4 6 5 4
7 6 6 5 5 6 5
5 5 4 5 6 4 4 4 6
6 7 7 6 8 5 4 6 4 5 4 9 6
8 24 10 6 6 5 5 5 5 5 5 5
5 8 5

Figure 7b. AIRCRAFT 1000 - 301 hPa RMS O-B vector (ms-1). AUGUST 2001
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: August 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 30.0 hPa

Element monitored :GEOPOTENTIAL HEIGHT IN metres

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown duringperiod.

:% REJ :Percentage of observations rejected by quality control at level shown during period excluding those with gross errors.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.1

SELECTION CRITERIA : ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS.

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
23418	00	Z	50	65/ 57	28	1	107.2	163.0	195.1	5
26477	12	Z	100	56/ 31	12	1	54.8	159.3	168.5	4
28722	12	Z	50	55/ 56	20	1	74.1	177.3	192.2	4
32098	00	Z	100	49/ 143	20	1	37.5	173.7	177.7	4
33791	12	Z	200	48/ 33	23	0	37.2	-90.7	98.1	6
33837	00	Z	50	46/ 31	28	1	83.5	234.6	249.1	5
34247	12	Z	50	50/ 41	29	0	41.6	183.6	188.3	6
34858	12	Z	30	46/ 43	15	0	25.2	197.1	198.7	4
42101	00	Z	100	30/ 76	16	0	111.8	-41.1	119.1	4
42101	12	Z	50	30/ 76	16	4	119.6	207.9	239.8	7
42314	00	Z	50	27/ 95	10	0	134.9	127.3	185.5	5
42314	12	Z	100	27/ 95	13	0	137.5	25.8	139.9	7
42339	12	Z	250	26/ 73	18	0	72.9	-18.8	75.3	4
42361	00	Z	150	26/ 78	10	0	103.4	-71.4	125.6	5
42361	12	Z	300	26/ 78	13	0	76.8	-49.2	91.3	5
42369	00	Z	150	27/ 81	17	1	129.2	-38.4	134.8	7
42369	12	Z	100	27/ 81	18	0	135.2	40.8	141.2	7
42379	00	Z	150	27/ 83	16	0	49.9	-165.9	173.3	4
42379	12	Z	150	27/ 83	15	0	89.1	-139.7	165.7	6
42397	00	Z	200	27/ 88	15	0	64.1	-84.4	106.0	5
42397	12	Z	200	27/ 88	17	0	78.5	-58.4	97.8	5
42410	00	Z	250	26/ 92	18	0	76.5	-7.0	76.8	4
42410	12	Z	100	26/ 92	11	1	102.0	-146.5	178.5	6
42647	00	Z	150	23/ 73	11	1	86.9	-123.1	150.7	5
42647	12	Z	300	23/ 73	10	1	40.0	92.3	100.6	4
42667	12	Z	100	23/ 77	14	0	121.7	103.0	159.5	4
42701	00	Z	30	23/ 85	10	0	149.1	205.2	253.7	7
42809	00	Z	150	23/ 88	23	0	76.7	-98.2	124.6	5
42809	12	Z	100	23/ 88	20	0	68.1	-119.8	137.8	4
42867	00	Z	150	21/ 79	10	0	121.0	-30.6	124.9	6
42971	00	Z	200	20/ 86	21	0	108.7	-47.5	118.7	7
42971	12	Z	100	20/ 86	20	0	136.9	-32.5	140.7	7
43003	00	Z	200	19/ 73	18	0	97.5	-94.9	136.1	5
43003	12	Z	70	19/ 73	9	1	122.0	152.6	195.4	8
43014	12	Z	250	20/ 75	24	0	77.9	42.1	88.6	4
43128	00	Z	150	17/ 78	30	0	75.3	-131.3	151.4	5
43185	00	Z	200	16/ 81	23	1	89.6	-10.5	90.2	4
43192	00	Z	150	15/ 74	11	1	75.8	-127.3	148.1	4
43279	00	Z	150	13/ 80	28	0	74.5	-137.0	156.0	7
43279	12	Z	150	13/ 80	28	0	92.3	-34.8	98.6	5
43333	00	Z	150	12/ 93	22	1	118.2	-98.3	153.7	6
43333	12	Z	150	12/ 93	18	1	91.7	-86.5	126.0	4
43346	00	Z	150	11/ 80	28	0	93.1	-118.5	150.7	6
43353	00	Z	100	10/ 76	10	0	36.5	-219.6	222.6	5
43353	12	Z	150	10/ 76	23	1	89.8	-67.2	112.1	5
43369	00	Z	70	8/ 73	14	0	123.4	-53.5	134.5	6
43371	00	Z	150	8/ 77	22	2	66.0	-151.0	164.7	6
58424	00	Z	100	31/ 117	30	0	37.3	119.4	125.1	4
58424	12	Z	100	31/ 117	28	0	36.7	124.8	130.1	4
82193	12	Z	50	-1/ -48	2	0	10.5	198.5	198.8	4
82332	12	Z	50	-3/ -60	18	0	74.0	174.7	189.7	4
82599	12	Z	50	-6/ -35	3	0	13.9	184.7	185.2	4
83840	00	Z	200	-26/ -49	4	0	94.8	-28.0	98.8	6
91366	00	Z	50	9/ 168	24	2	84.2	216.7	232.5	6

Figure 8. TEMP 500 hPa geopotential mean daily count. AUGUST 2001

All hours

Global average number of observations in 24 hours = 1183

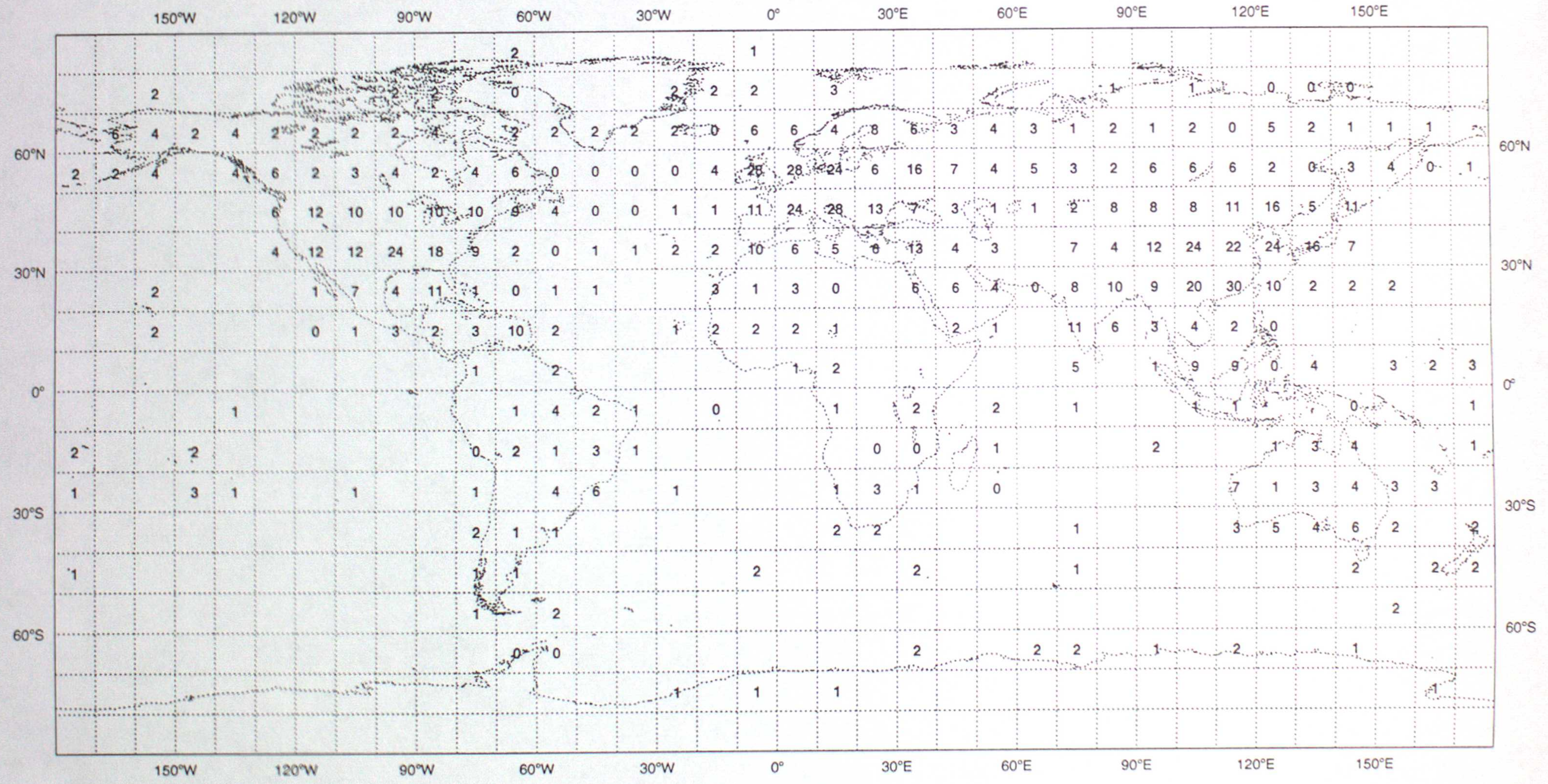

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: August 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 100.0 hPa

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period excluding those with gross errors.

:UBIAS,VBIAS :Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.2

SELECTION CRITERIA : ≥ 10 observations and ≥ 15 m s^{-1} RMS vector wind.

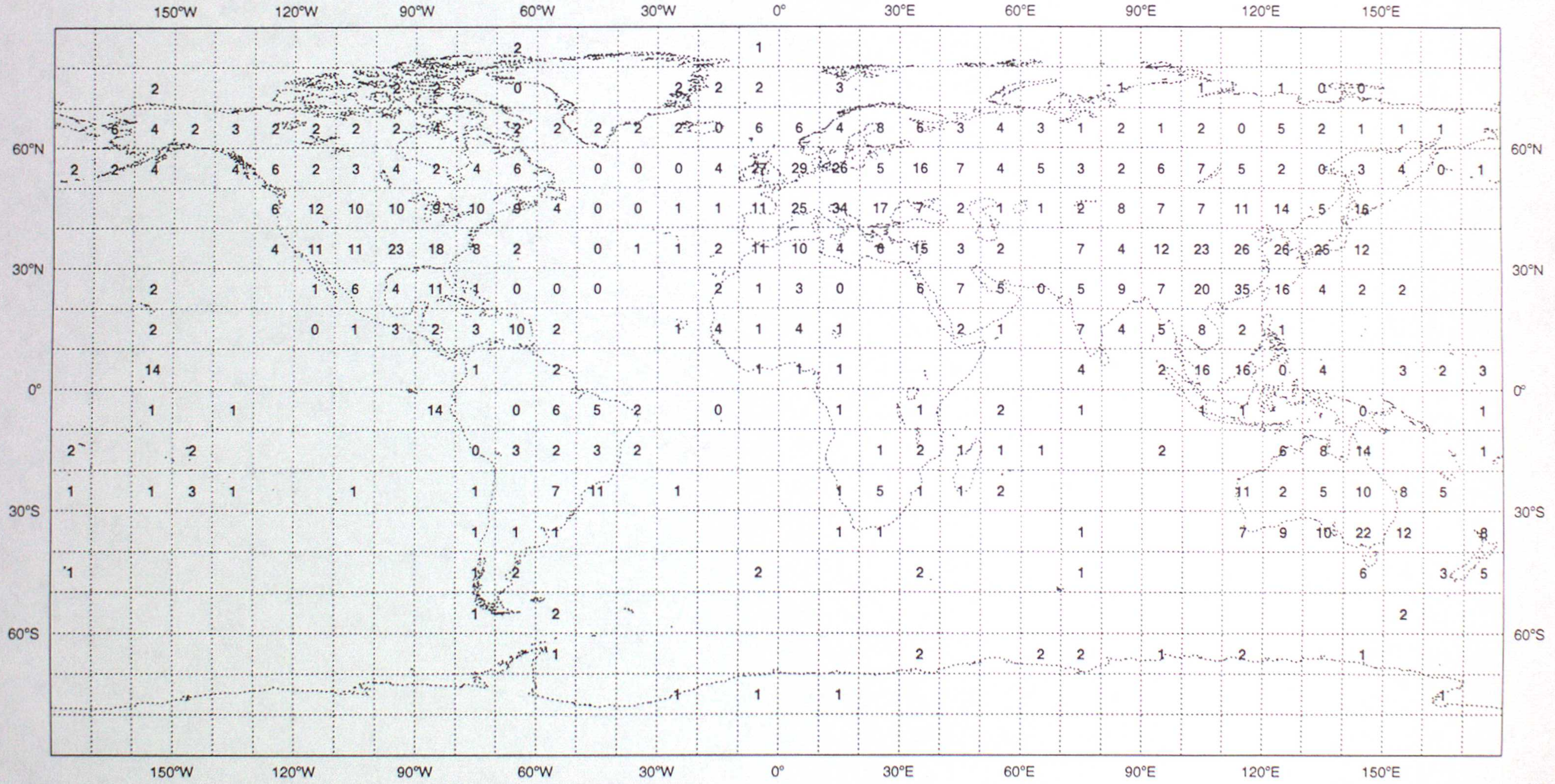
ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
PSPIU	00	V	100	-5/ -81	22	0	100	-0.1	-2.6	25.5	5
PSPIU	12	V	100	-5/ -81	26	0	100	-7.1	-1.6	24.7	2
43369	00	V	100	8/ 73	13	0	15	3.9	-4.3	16.8	1
43369	12	V	200	8/ 73	14	0	14	2.2	6.0	15.1	1
43371	00	V	100	8/ 77	21	0	14	12.7	0.9	15.7	1
43371	12	V	100	8/ 77	23	0	8	12.1	2.9	15.8	1
48455	12	V	100	14/ 101	21	0	52	12.5	6.3	17.0	1
63985	00	V	150	-5/ 56	17	0	100	7.2	2.5	16.0	1
63985	12	V	150	-5/ 56	26	0	100	4.0	1.0	17.8	1
64400	12	V	150	-5/ 12	20	1	0	10.7	1.2	15.7	1
64458	12	V	150	2/ 16	17	0	100	8.8	4.0	16.1	1
68263	12	V	250	-26/ 28	12	0	66	-10.0	-4.3	21.0	1
68424	12	V	400	-28/ 21	16	0	25	-10.8	1.0	15.7	1
68442	12	V	300	-29/ 26	19	0	100	-19.8	1.0	26.2	4
68461	12	V	200	-28/ 28	11	0	100	-6.0	0.3	18.0	2
68512	12	V	200	-30/ 18	17	0	100	-15.8	-1.3	21.1	6
68588	12	V	400	-30/ 31	12	0	100	-6.2	-1.2	15.0	1
68842	12	V	500	-34/ 26	14	0	100	-4.7	5.6	16.1	1
80398	12	V	300	-5/ -70	13	0	15	7.4	5.5	21.2	2
82397	12	V	150	-4/ -39	16	0	6	11.8	-3.0	16.8	1
83378	00	V	250	-16/ -48	6	0	16	-7.4	-0.7	15.5	1
89009	00	V	250	-90/ 0	25	0	16	-1.3	3.3	17.2	3
91843	00	V	100	-21/-160	16	0	6	4.7	-3.9	15.4	1
93997	00	V	500	-29/-178	21	0	4	0.5	5.3	16.1	1
97014	00	V	100	2/ 125	10	0	10	5.2	-0.4	17.7	1

Figure 9. TEMP/PILOT 300 hPa wind mean daily count. AUGUST 2001

All hours

Global average number of observations in 24 hours = 1382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60°S
2 1
2 0 2 2 2 3 1 1 1 0 0
6 4 2 3 2 2 2 2 4 2 2 2 2 2 0 6 6 4 8 6 3 4 3 1 2 1 2 0 5 2 1 1 1
2 2 4 4 6 2 3 4 2 4 6 0 0 0 4 27 29 26 5 16 7 4 5 3 2 6 7 5 2 0 3 4 0 1
6 12 10 10 9 10 9 4 0 0 1 1 11 25 34 17 7 2 1 1 2 8 7 7 11 14 5 16
4 11 11 23 18 8 2 0 1 1 2 11 10 4 6 15 3 2 7 4 12 23 26 26 25 12
2 1 6 4 11 1 0 0 0 2 1 3 0 6 7 5 0 5 9 7 20 35 16 4 2 2
2 0 1 3 2 3 10 2 1 4 1 4 1 2 1 7 4 5 8 2 1
14 1 2 1 1 1 4 2 16 16 0 4 3 2 3
1 1 14 0 6 5 2 0 1 1 2 1 1 1 0 1
2 2 0 3 2 3 2 1 2 1 1 1 2 6 8 14 1
1 1 3 1 1 1 7 11 1 1 5 1 1 2 11 2 5 10 8 5
1 1 1 1 1 1 7 9 10 22 12 8
1 1 2 2 2 1 6 3 5
1 2 2
1 2 2 2 1 2 1
1 1 1 1

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: August 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 500.0 - 150.0 hPa

Element monitored :WIND DIRECTION in degrees

Parameters monitored

:NUM OBS :Average number of observations at all levels.

:BIAS :Mean difference of observations from background values from all levels.

:MAX SPREAD :(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels

:SD :SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS ≥ 5, and
ABSOLUTE BIAS ≥ 10°, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
11722	00	DD	49/ 17	24	-10.3	2.4	12.3
17280	00	DD	38/ 40	29	-12.0	2.2	8.4
17280	12	DD	38/ 40	28	-12.7	3.2	9.3
29612	12	DD	55/ 78	23	24.4	4.1	12.3
40179	12	DD	32/ 35	21	-10.8	4.3	11.6
42182	00	DD	29/ 77	15	-16.7	3.4	15.6
42182	12	DD	29/ 77	17	-15.2	8.5	19.3
42397	12	DD	27/ 88	7	11.9	9.9	16.9
42971	12	DD	20/ 86	16	-11.1	7.3	19.3
43041	00	DD	19/ 82	13	14.6	7.4	18.5
48455	12	DD	14/ 101	20	16.0	7.1	23.7
57749	00	DD	28/ 110	20	17.0	8.7	20.5
57749	12	DD	28/ 110	18	10.2	7.9	19.8
60360	12	DD	37/ 8	16	18.8	8.1	18.3
60490	12	DD	36/ -1	25	-11.2	6.3	15.5
62337	12	DD	31/ 34	18	-19.5	4.8	12.8
78866	00	DD	18/ -63	14	-14.8	7.3	17.8
78866	12	DD	18/ -63	11	-14.0	9.7	20.5
97014	00	DD	2/ 125	8	10.7	7.7	17.6

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: BRACKNELL

MONTH: August 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from GOES-8, GOES-10, METEOSAT-5, METEOSAT-7, GMS-5, INSAT.

Standard of comparison :Background field from UKMO global model.

Selection Criteria :number of observations > 10.

Data Extracted :Layer 701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

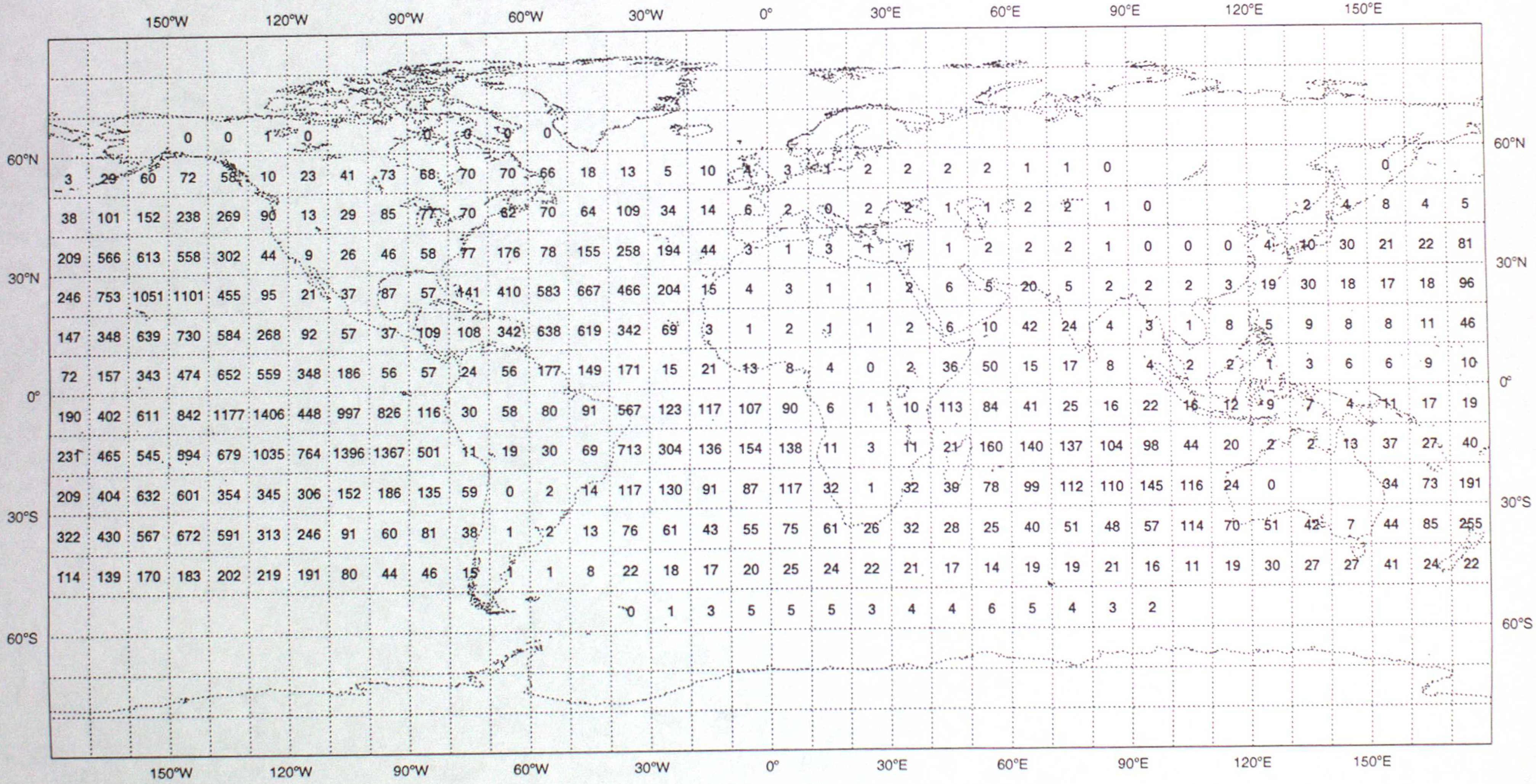
:Mean wind

:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

:RMS of observation minus background vector differences

Figure 10. SATOB 701 - 1000 hPa mean daily count. AUGUST 2001
Global average number of observations in 24 hours = 51994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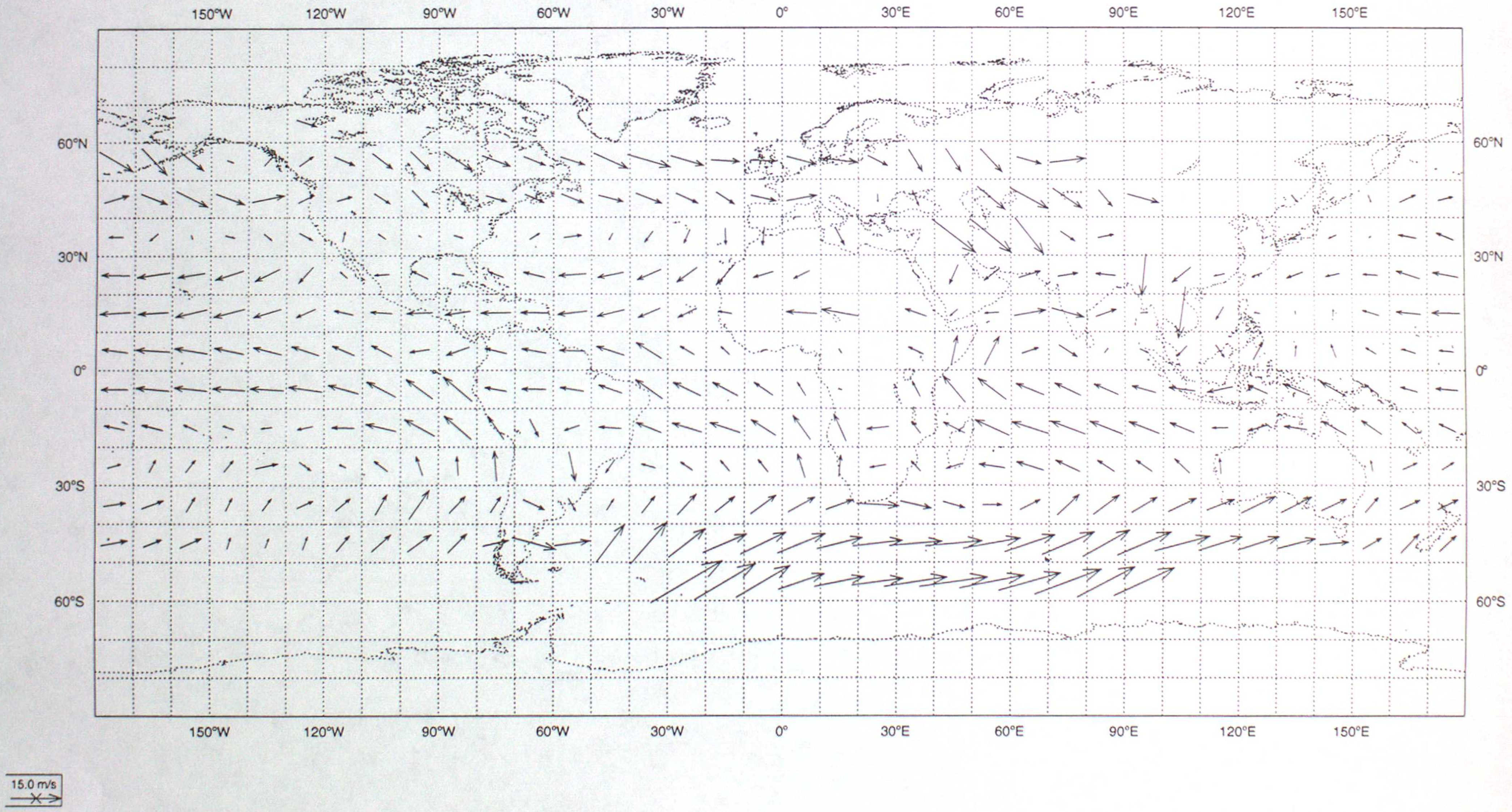
0 0 1 0 0 0 0 0
3 29 60 72 58 10 23 41 73 68 70 70 66 18 13 5 10 1 3 1 2 2 2 2 1 1 0 0
38 101 152 238 269 90 13 29 85 77 70 62 70 64 109 34 14 6 2 0 2 2 1 1 2 2 1 0 2 4 8 4 5
209 566 613 558 302 44 9 26 46 58 77 176 78 155 258 194 44 3 1 3 1 1 1 2 2 2 1 0 0 0 4 10 30 21 22 81
246 753 1051 1101 455 95 21 37 87 57 141 410 583 667 466 204 15 4 3 1 1 2 6 5 20 5 2 2 2 3 19 30 18 17 18 96
147 348 639 730 584 268 92 57 37 109 108 342 638 619 342 69 3 1 2 1 1 2 6 10 42 24 4 3 1 8 5 9 8 8 11 46
72 157 343 474 652 559 348 186 56 57 24 56 177 149 171 15 21 13 8 4 0 2 36 50 15 17 8 4 2 2 1 3 6 6 9 10
190 402 611 842 1177 1406 448 997 826 116 30 58 80 91 567 123 117 107 90 6 1 10 113 84 41 25 16 22 16 12 9 7 4 11 17 19
231 465 545 594 679 1035 764 1396 1367 501 11 19 30 69 713 304 136 154 138 11 3 11 21 160 140 137 104 98 44 20 2 2 13 37 27 40
209 404 632 601 354 345 306 152 186 135 59 0 2 14 117 130 91 87 117 32 1 32 39 78 99 112 110 145 116 24 0 34 73 191
322 430 567 672 591 313 246 91 60 81 38 1 2 13 76 61 43 55 75 61 26 32 28 25 40 51 48 57 114 70 51 42 7 44 85 255
114 139 170 183 202 219 191 80 44 46 15 1 1 8 22 18 17 20 25 24 22 21 17 14 19 19 21 16 11 19 30 27 27 41 24 22
0 1 3 5 5 5 3 4 4 6 5 4 3 2

Figure 11. SATOB 701 - 1000 hPa vector mean wind. AUGUST 2001
All observations
Arrows are plotted where greater than 10 obs are present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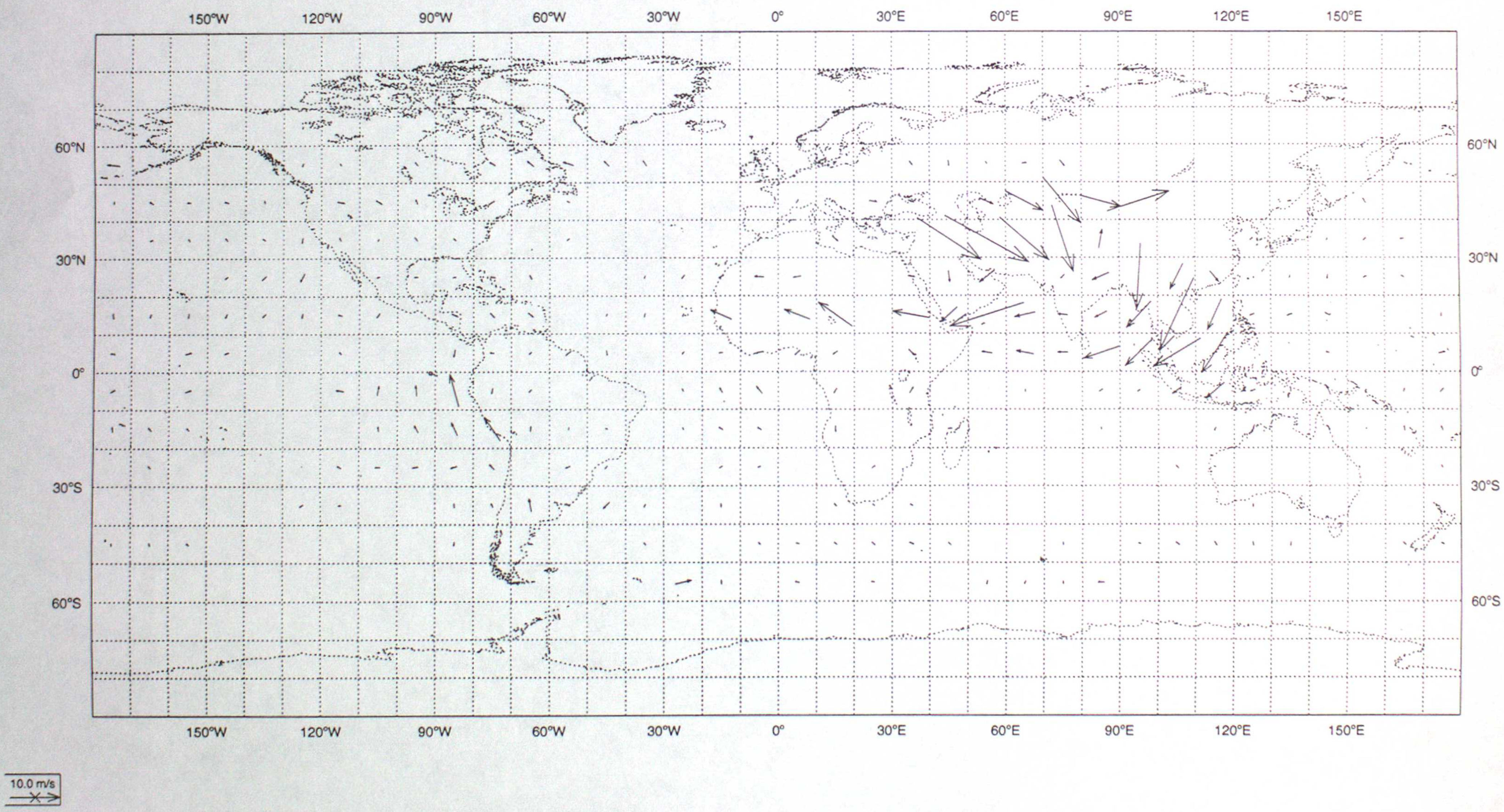
0°
30°S
60°S
15.0 m/s

Figure 12. SATOB 701 - 1000 hPa vector wind differences. AUGUST 2001
All observations
Arrows are plotted where greater than 10 obs are present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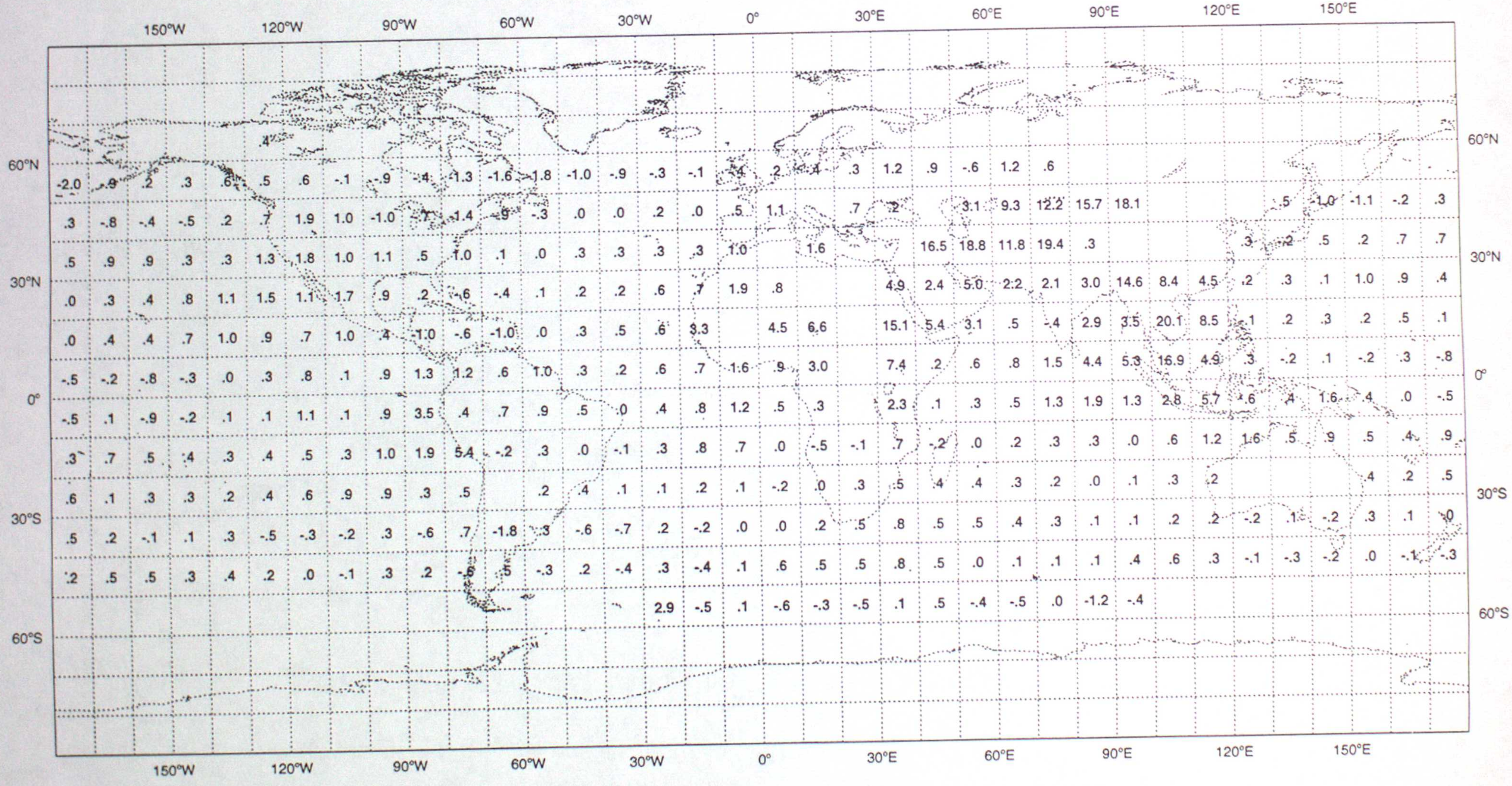
60°N
30°N
0°
30°S
60°S
10.0 m/s

Figure 13. SATOB 701 - 1000 hPa mean O-B speed differences (ms-1). AUGUST 2001

All observations

Values are plotted where greater than 10 obs are present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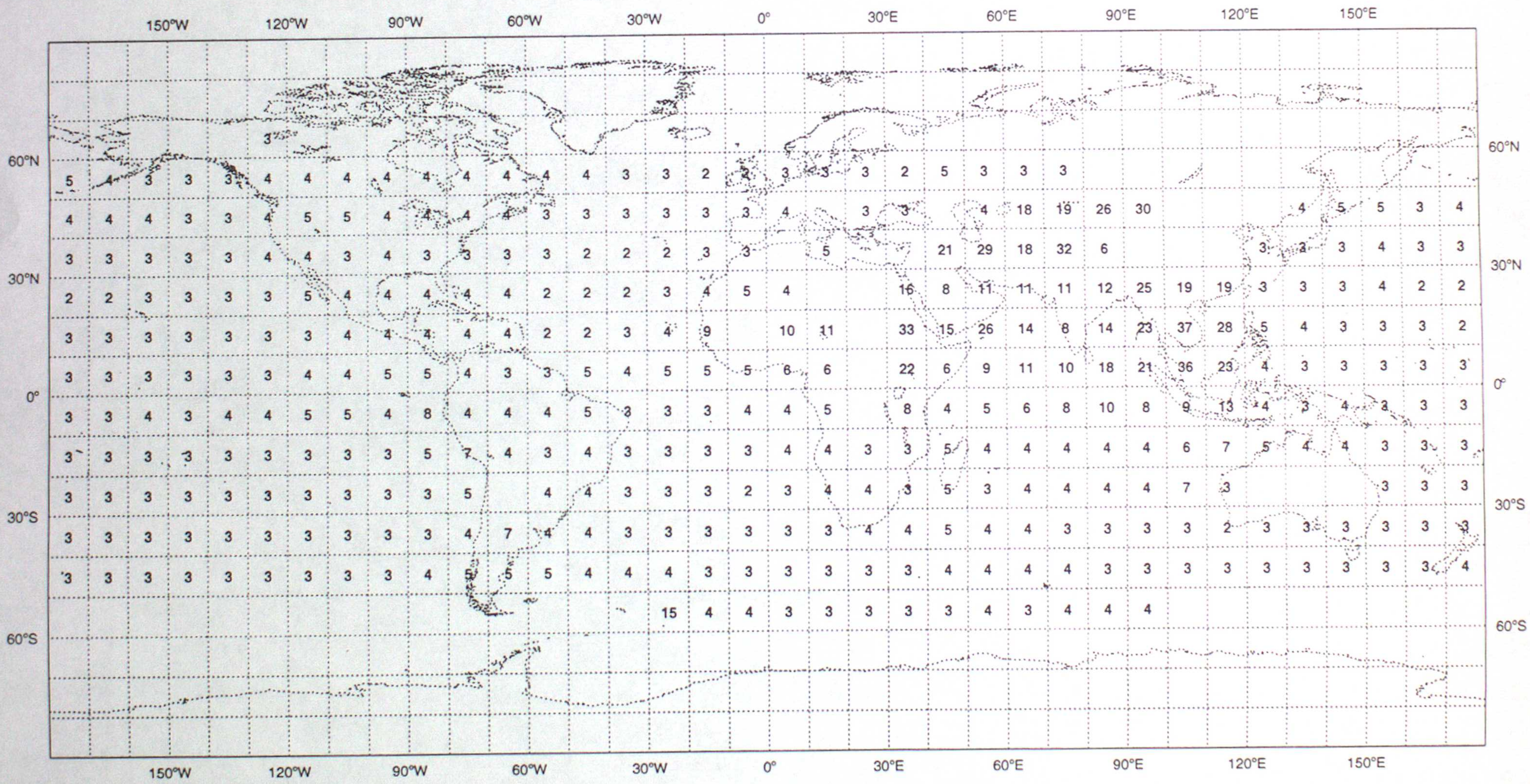
60°N 30°N 0° 30°S 60°S
.4
-2.0 -.9 .2 .3 .6 .5 .6 -.1 -.9 -.4 -1.3 -1.6 -1.8 -1.0 -.9 -.3 -.1 .4 .2 .4 .3 1.2 .9 -.6 1.2 .6
.3 -.8 -.4 -.5 .2 .7 1.9 1.0 -1.0 -.7 -1.4 -.9 -.3 .0 .0 .2 .0 .5 1.1 .7 .2 3.1 9.3 12.2 15.7 18.1 .5 -1.0 -1.1 -.2 .3
.5 .9 .9 .3 .3 1.3 1.8 1.0 1.1 .5 1.0 .1 .0 .3 .3 .3 .3 1.0 1.6 16.5 18.8 11.8 19.4 .3 .3 .2 .5 .2 .7 .7
.0 .3 .4 .8 1.1 1.5 1.1 1.7 .9 .2 -.6 -.4 .1 .2 .2 .6 .7 1.9 .8 4.9 2.4 5.0 2.2 2.1 3.0 14.6 8.4 4.5 .2 .3 .1 1.0 .9 .4
.0 .4 .4 .7 1.0 .9 .7 1.0 .4 -1.0 -.6 -1.0 .0 .3 .5 .6 3.3 4.5 6.6 15.1 5.4 3.1 .5 -.4 2.9 3.5 20.1 8.5 .1 .2 .3 .2 .5 .1
-.5 -.2 -.8 -.3 .0 .3 .8 .1 .9 1.3 1.2 .6 1.0 .3 .2 .6 .7 1.6 .9 3.0 7.4 .2 .6 .8 1.5 4.4 5.3 16.9 4.9 .3 -.2 .1 -.2 .3 -.8
-.5 .1 -.9 -.2 .1 .1 1.1 .1 .9 3.5 .4 .7 .9 .5 .0 .4 .8 1.2 .5 .3 2.3 .1 .3 .5 1.3 1.9 1.3 2.8 5.7 .6 .4 1.6 .4 .0 -.5
.3 .7 .5 .4 .3 .4 .5 .3 1.0 1.9 5.4 -.2 .3 .0 -.1 .3 .8 .7 .0 -.5 -.1 .7 -.2 .0 .2 .3 .3 .0 .6 1.2 1.6 .5 .9 .5 .4 .9
.6 .1 .3 .3 .2 .4 .6 .9 .9 .3 .5 .2 .4 .1 .1 .2 .1 -.2 .0 .3 .5 .4 .4 .3 .2 .0 .1 .3 .2 .4 .2 .5
.5 .2 -.1 .1 .3 -.5 -.3 -.2 .3 -.6 .7 -1.8 .3 -.6 -.7 .2 -.2 .0 .0 .2 .5 .8 .5 .5 .4 .3 .1 .1 .2 .2 -.2 .1 -.2 .3 .1 .0
.2 .5 .5 .3 .4 .2 .0 -.1 .3 .2 -.6 .5 -.3 .2 -.4 .3 -.4 .1 .6 .5 .5 .8 .5 .0 .1 .1 .1 .4 .6 .3 -.1 -.3 -.2 .0 -.1 -.3
2.9 -.5 .1 -.6 -.3 -.5 .1 .5 -.4 -.5 .0 -1.2 -.4

Figure 14. SATOB 701 - 1000 hPa RMS O-B vector differences (ms-1). AUGUST 2001

All observations

Values are plotted where greater than 10 obs are present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3
5 4 3 3 3 4 4 4 4 4 4 4 4 4 3 3 2 3 3 3 3 2 5 3 3 3
4 4 4 3 3 4 5 5 4 4 4 4 3 3 3 3 3 3 4 3 3 4 18 19 26 30 4 5 5 3 4
3 3 3 3 3 4 4 3 4 3 3 3 3 2 2 2 3 3 5 21 29 18 32 6 3 3 3 4 3 3
2 2 3 3 3 3 5 4 4 4 4 4 2 2 2 3 4 5 4 16 8 11 11 11 12 25 19 19 3 3 3 4 2 2
3 3 3 3 3 3 3 4 4 4 4 4 2 2 3 4 9 10 11 33 15 26 14 8 14 23 37 28 5 4 3 3 3 2
3 3 3 3 3 3 4 4 5 5 4 3 3 5 4 5 5 5 6 6 22 6 9 11 10 18 21 36 23 4 3 3 3 3 3
3 3 4 3 4 4 5 5 4 8 4 4 4 5 3 3 3 4 4 5 8 4 5 6 8 10 8 9 13 4 3 4 3 3 3
3 3 3 3 3 3 3 3 3 5 7 4 3 4 3 3 3 3 4 4 3 3 5 4 4 4 4 4 6 7 5 4 4 3 3 3
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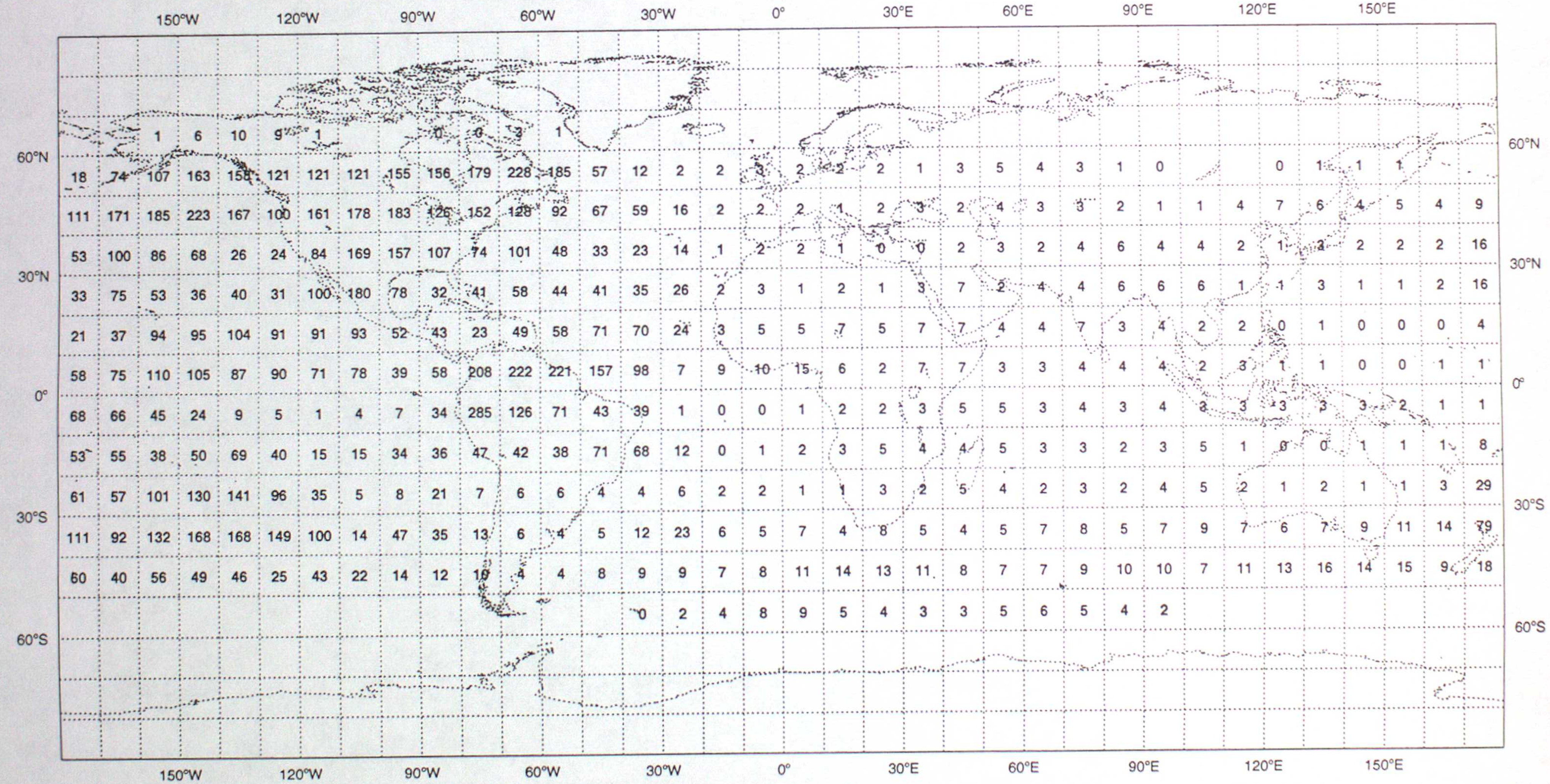
3 3 3 3 3 3 3 3 3 4 5 5 5 4 4 4 3 3 3 3 3 3 4 4 4 4 3 3 3 3 3 3 3 3 3 4
15 4 4 3 3 3 3 3 4 3 4 4 4

Figure 15. SATOB 401 - 700 hPa mean daily count. AUGUST 2001
Global average number of observations in 24 hours = 13517

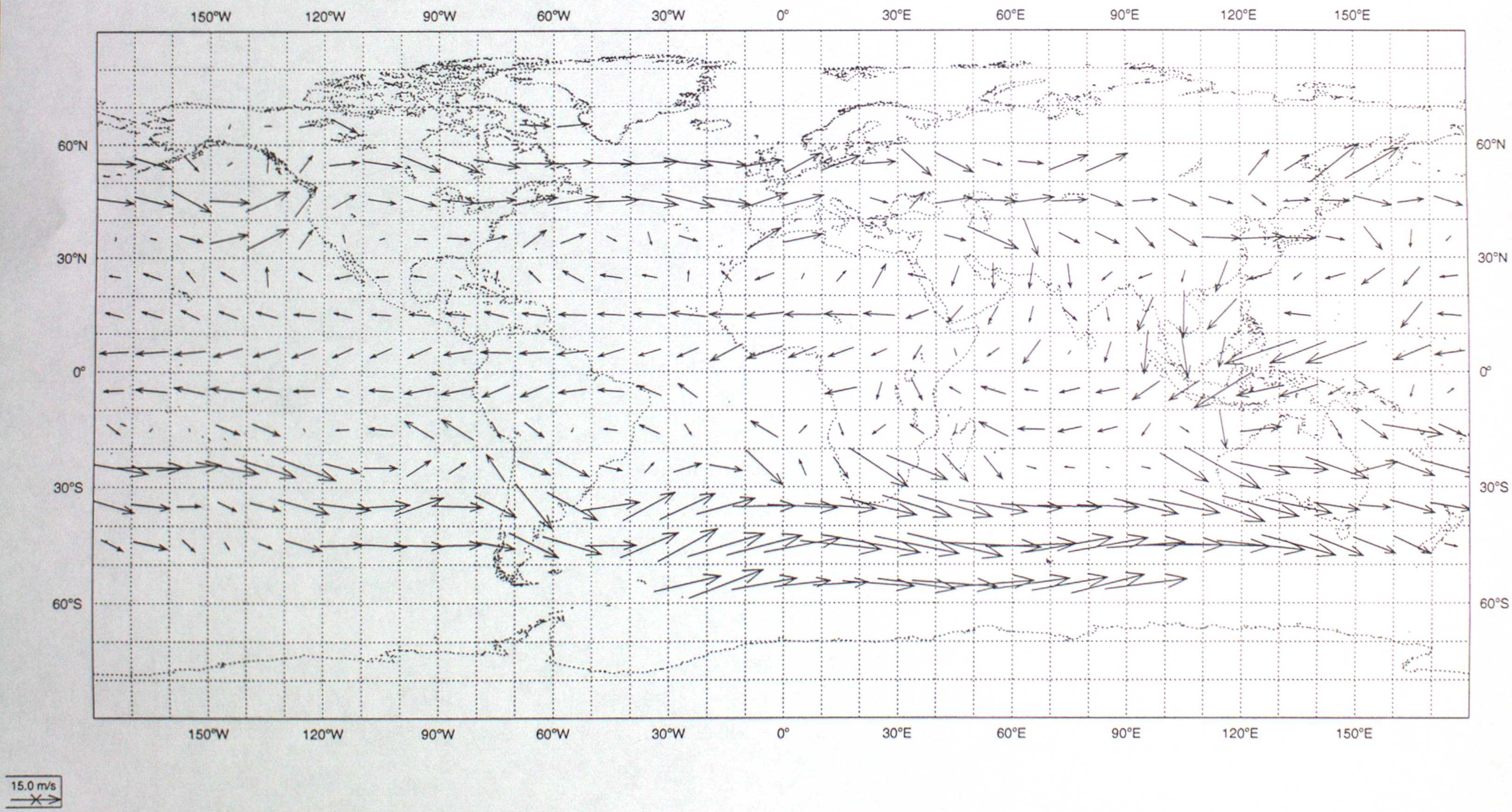


		1	6	10	9	1			0	0	3	1																							
18	74	107	163	158	121	121	121	155	156	179	228	185	57	12	2	2	3	2	2	2	1	3	5	4	3	1	0			0	1	1	1		
111	171	185	223	167	100	161	178	183	126	152	128	92	67	59	16	2	2	2	1	2	3	2	4	3	3	2	1	1	4	7	6	4	5	4	9
53	100	86	68	26	24	84	169	157	107	74	101	48	33	23	14	1	2	2	1	0	0	2	3	2	4	6	4	4	2	1	3	2	2	2	16
33	75	53	36	40	31	100	180	78	32	41	58	44	41	35	26	2	3	1	2	1	3	7	2	4	4	6	6	6	1	1	3	1	1	2	16
21	37	94	95	104	91	91	93	52	43	23	49	58	71	70	24	3	5	5	7	5	7	7	4	4	7	3	4	2	2	0	1	0	0	0	4
58	75	110	105	87	90	71	78	39	58	208	222	221	157	98	7	9	10	15	6	2	7	7	3	3	4	4	4	2	3	1	1	0	0	1	1
68	66	45	24	9	5	1	4	7	34	285	126	71	43	39	1	0	0	1	2	2	3	5	5	3	4	3	4	3	3	3	3	3	2	1	1
53	55	38	50	69	40	15	15	34	36	47	42	38	71	68	12	0	1	2	3	5	4	4	5	3	3	2	3	5	1	0	0	1	1	1	8
61	57	101	130	141	96	35	5	8	21	7	6	6	4	4	6	2	2	1	1	3	2	5	4	2	3	2	4	5	2	1	2	1	1	3	29
111	92	132	168	168	149	100	14	47	35	13	6	4	5	12	23	6	5	7	4	8	5	4	5	7	8	5	7	9	7	6	7	9	11	14	79
60	40	56	49	46	25	43	22	14	12	10	4	4	8	9	9	7	8	11	14	13	11	8	7	7	9	10	10	7	11	13	16	14	15	9	18
														0	2	4	8	9	5	4	3	3	5	6	5	4	2								

Figure 16. SATOB 401 - 700 hPa vector mean wind. AUGUST 2001

All observations

Arrows are plotted where greater than 10 obs are present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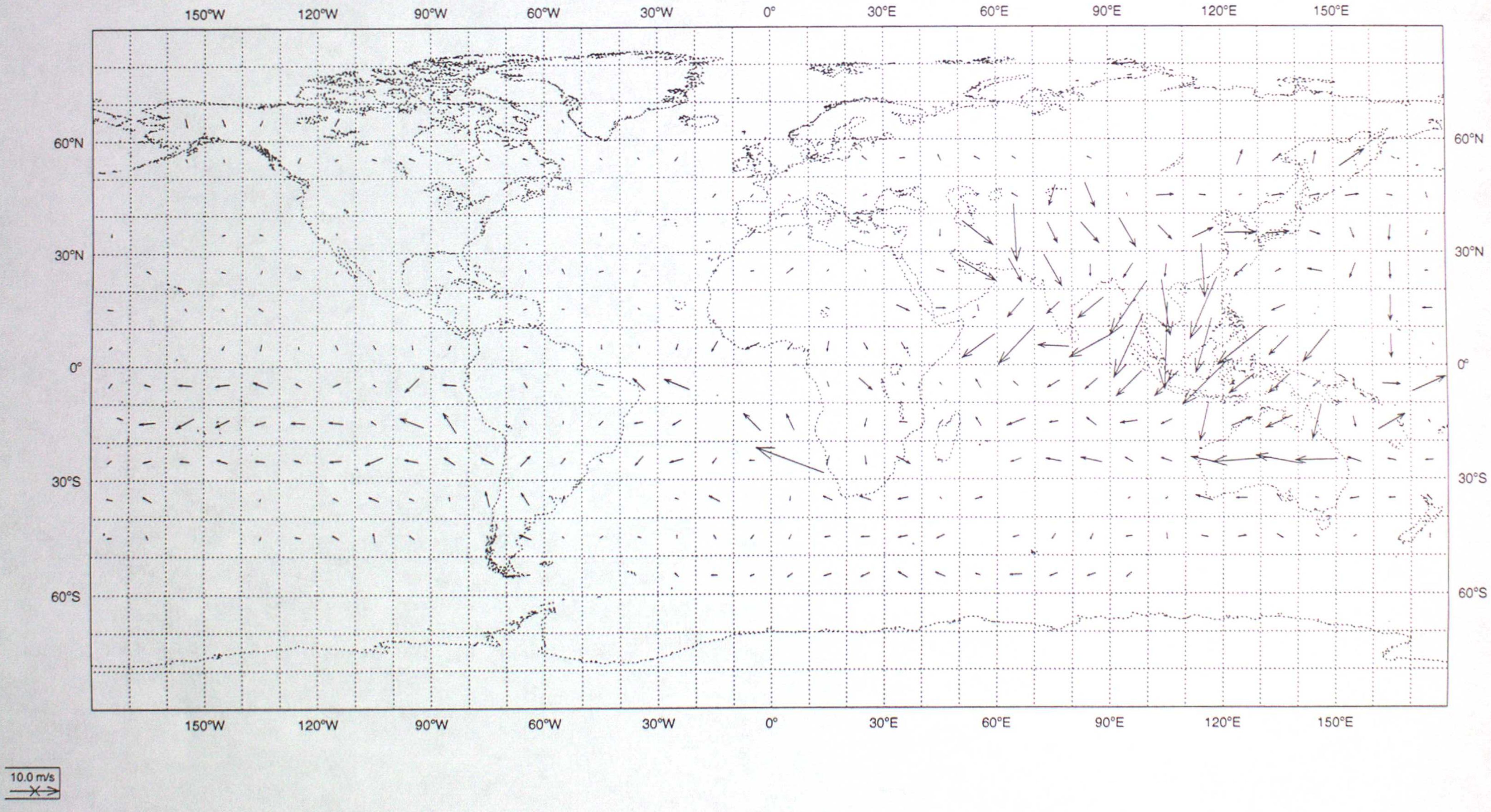
150°E
60°N
30°N
0°
30°S
60°S
15.0 m/s

Figure 17. SATOB 401 - 700 hPa vector wind differences. AUGUST 2001

All observations

Arrows are plotted where greater than 10 obs are present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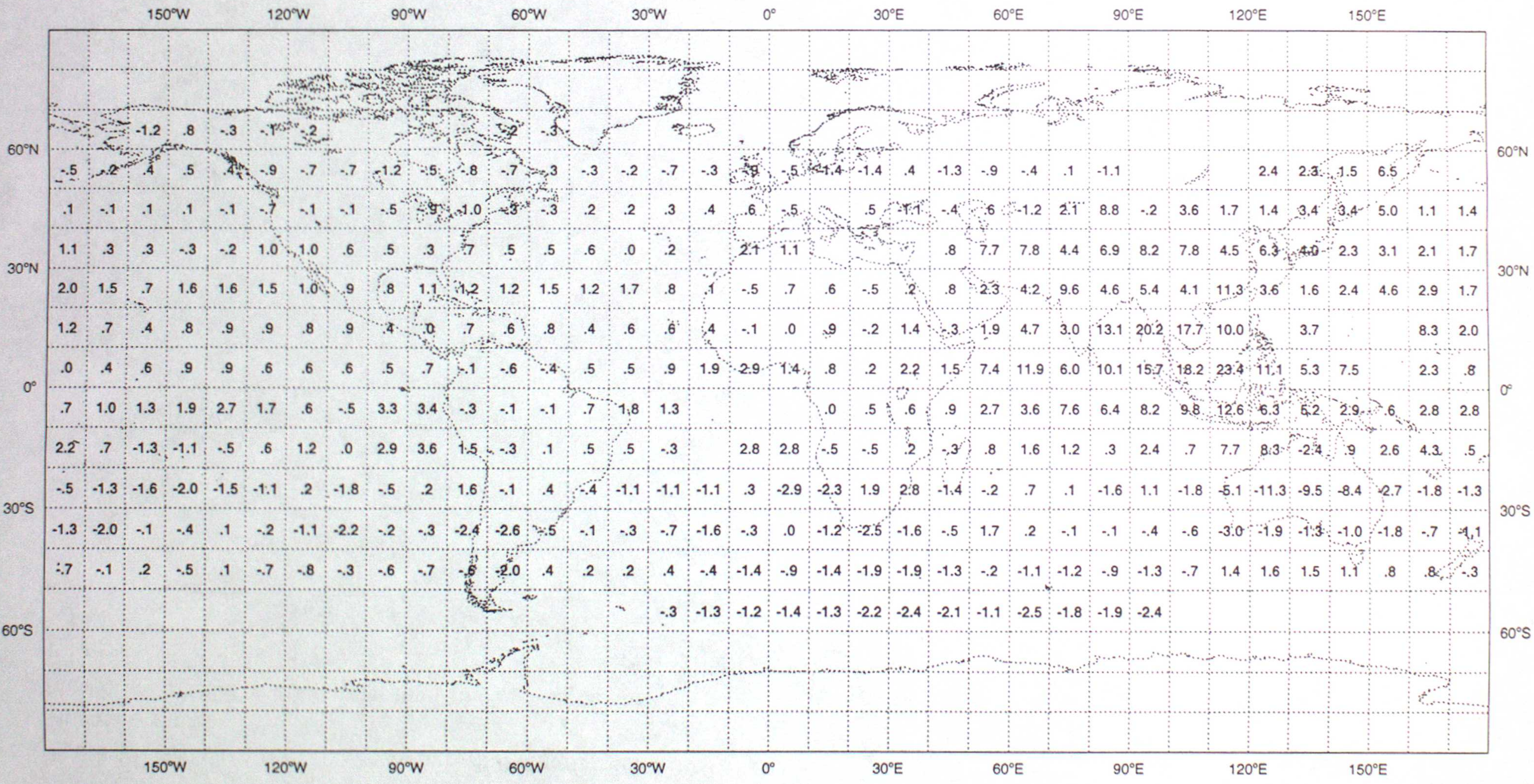
30°N
0°
30°S
60°S
10.0 m/s

Figure 18. SATOB 401 - 700 hPa mean O-B speed differences (ms-1). AUGUST 2001

All observations

Values are plotted where greater than 10 obs are present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60°N
30°N
0°
30°S
60°S
-1.2 .8 -.3 -.1 -.2 -.2 -.3
-.5 -.2 .4 .5 .4 -.9 -.7 -.7 -1.2 -.5 -.8 -.7 -.3 -.3 -.2 -.7 -.3 -.9 -.5 -1.4 -1.4 .4 -1.3 -.9 -.4 .1 -1.1 2.4 2.3 1.5 6.5
.1 -.1 .1 .1 -.1 -.7 -.1 -.1 -.5 -.9 -1.0 -.3 -.3 .2 .2 .3 .4 .6 -.5 .5 -1.1 -.4 .6 -1.2 2.1 8.8 -.2 3.6 1.7 1.4 3.4 3.4 5.0 1.1 1.4
1.1 .3 .3 -.3 -.2 1.0 1.0 .6 .5 .3 .7 .5 .5 .6 .0 .2 2.1 1.1 .8 7.7 7.8 4.4 6.9 8.2 7.8 4.5 6.3 4.0 2.3 3.1 2.1 1.7
2.0 1.5 .7 1.6 1.6 1.5 1.0 .9 .8 1.1 1.2 1.2 1.5 1.2 1.7 .8 .1 -.5 .7 .6 -.5 .2 .8 2.3 4.2 9.6 4.6 5.4 4.1 11.3 3.6 1.6 2.4 4.6 2.9 1.7
1.2 .7 .4 .8 .9 .9 .8 .9 .4 .0 .7 .6 .8 .4 .6 .6 .4 -.1 .0 .9 -.2 1.4 -.3 1.9 4.7 3.0 13.1 20.2 17.7 10.0 3.7 8.3 2.0
.0 .4 .6 .9 .9 .6 .6 .6 .5 .7 -.1 -.6 -.4 .5 .5 .9 1.9 -2.9 1.4 .8 .2 2.2 1.5 7.4 11.9 6.0 10.1 15.7 18.2 23.4 11.1 5.3 7.5 2.3 .8
.7 1.0 1.3 1.9 2.7 1.7 .6 -.5 3.3 3.4 -.3 -.1 -.1 .7 1.8 1.3 .0 .5 .6 .9 2.7 3.6 7.6 6.4 8.2 9.8 12.6 6.3 5.2 2.9 .6 2.8 2.8
2.2 .7 -1.3 -1.1 -.5 .6 1.2 .0 2.9 3.6 1.5 -.3 .1 .5 .5 -.3 2.8 2.8 -.5 -.5 .2 -.3 .8 1.6 1.2 .3 2.4 .7 7.7 8.3 -2.4 .9 2.6 4.3 .5
-.5 -1.3 -1.6 -2.0 -1.5 -1.1 .2 -1.8 -.5 .2 1.6 -.1 .4 -.4 -1.1 -1.1 -1.1 .3 -2.9 -2.3 1.9 2.8 -1.4 -.2 .7 .1 -1.6 1.1 -1.8 -5.1 -11.3 -9.5 -8.4 -2.7 -1.8 -1.3
-1.3 -2.0 -.1 -.4 .1 -.2 -1.1 -2.2 -.2 -.3 -2.4 -2.6 -.5 -.1 -.3 -.7 -1.6 -.3 .0 -1.2 -2.5 -1.6 -.5 1.7 .2 -.1 -.1 -.4 -.6 -3.0 -1.9 -1.3 -1.0 -1.8 -.7 -1.1
-.7 -.1 .2 -.5 .1 -.7 -.8 -.3 -.6 -.7 -.6 -2.0 .4 .2 .2 .4 -.4 -1.4 -.9 -1.4 -1.9 -1.9 -1.3 -.2 -1.1 -1.2 -.9 -1.3 -.7 1.4 1.6 1.5 1.1 .8 .8 -.3
-.3 -1.3 -1.2 -1.4 -1.3 -2.2 -2.4 -2.1 -1.1 -2.5 -1.8 -1.9 -2.4

Figure 19. SATOB 401 - 700 hPa RMS O-B vector differences (ms-1). AUGUST 2001

All observations

Values are plotted where greater than 10 obs are present

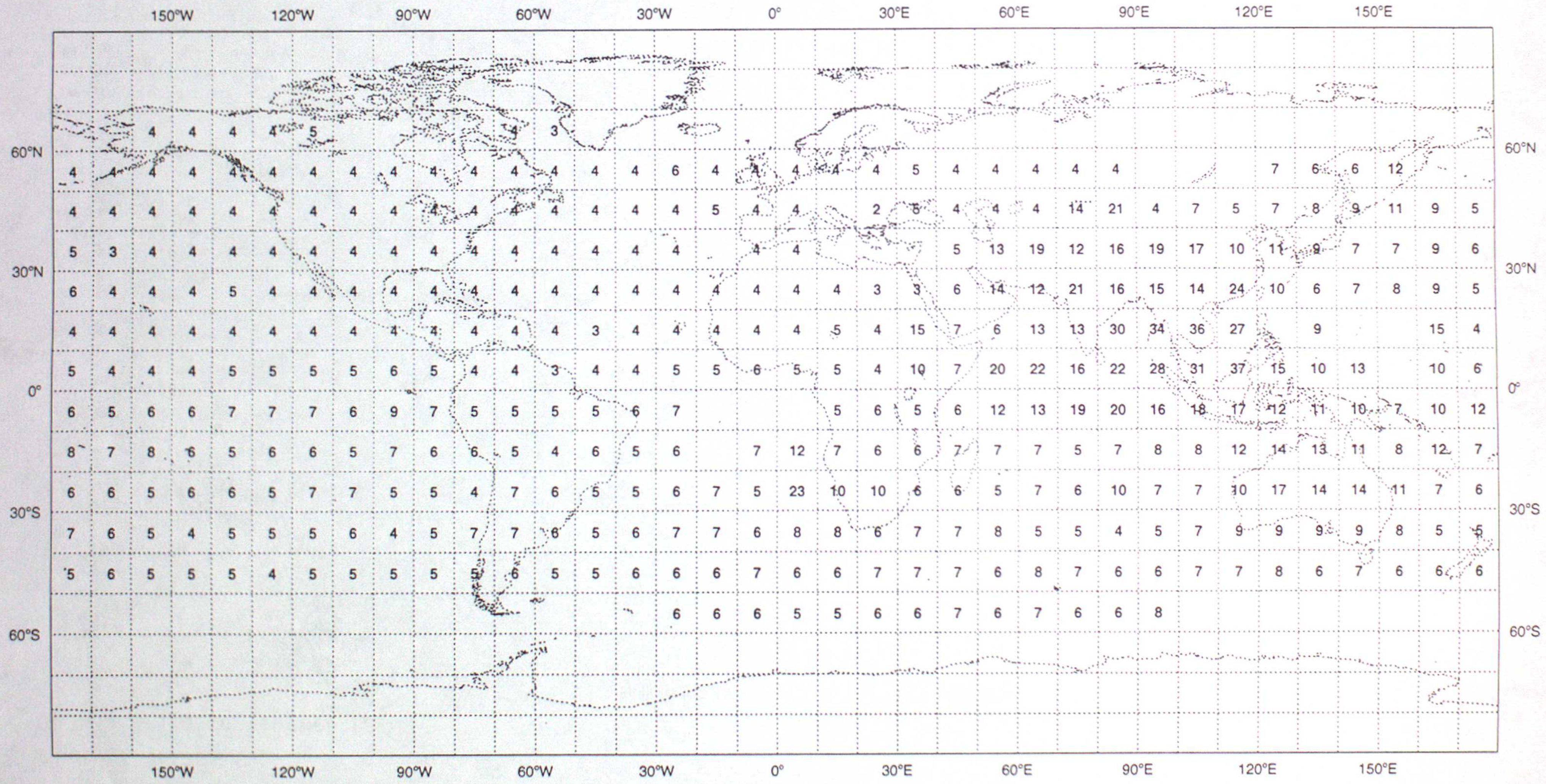

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S
4 4 4 4 5 4 3
4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 6 4 4 4 4 4 5 4 4 4 4 4 7 6 6 12
4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 5 4 4 2 5 4 4 4 14 21 4 7 5 7 8 9 11 9 5
5 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 5 13 19 12 16 19 17 10 11 9 7 7 9 6
6 4 4 4 5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 3 3 6 14 12 21 16 15 14 24 10 6 7 8 9 5
4 4 4 4 4 4 4 4 4 4 4 4 4 3 4 4 4 4 4 5 4 15 7 6 13 13 30 34 36 27 9 15 4
5 4 4 4 5 5 5 5 6 5 4 4 3 4 4 5 5 6 5 5 4 10 7 20 22 16 22 28 31 37 15 10 13 10 6
6 5 6 6 7 7 7 6 9 7 5 5 5 5 6 7 5 6 5 6 12 13 19 20 16 18 17 12 11 10 7 10 12
8 7 8 6 5 6 6 5 7 6 6 5 4 6 5 6 7 12 7 6 6 7 7 7 5 7 8 8 12 14 13 11 8 12 7
6 6 5 6 6 5 7 7 5 5 4 7 6 5 5 6 7 5 23 10 10 6 6 5 7 6 10 7 7 10 17 14 14 11 7 6
7 6 5 4 5 5 5 6 4 5 7 7 6 5 6 7 7 6 8 8 6 7 7 8 5 5 4 5 7 9 9 9 9 8 5 5
5 6 5 5 5 4 5 5 5 5 5 6 5 5 6 6 6 7 6 6 7 7 7 6 8 7 6 6 7 7 8 6 7 6 6 6
6 6 6 5 5 6 6 7 6 7 6 6 8

Figure 20. SATOB 101 - 400 hPa mean daily count. AUGUST 2001
Global average number of observations in 24 hours = 64537

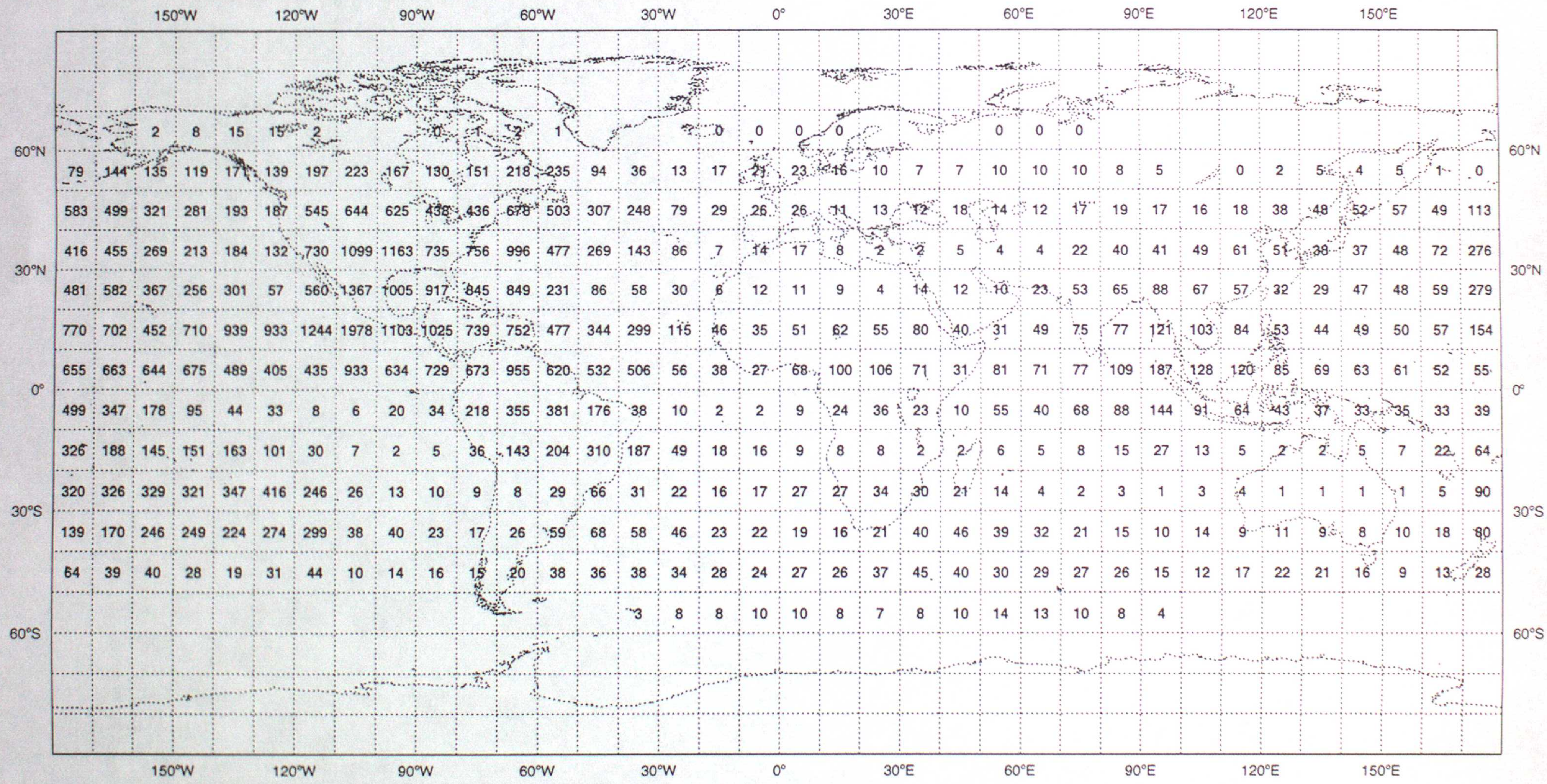

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
2 8 15 15 2 0 1 2 1 0 0 0 0 0 0 0
79 144 135 119 171 139 197 223 167 130 151 218 235 94 36 13 17 21 23 16 10 7 7 10 10 10 8 5 0 2 5 4 5 1 0
583 499 321 281 193 187 545 644 625 438 436 678 503 307 248 79 29 26 26 11 13 12 18 14 12 17 19 17 16 18 38 48 52 57 49 113
416 455 269 213 184 132 730 1099 1163 735 756 996 477 269 143 86 7 14 17 8 2 2 5 4 4 22 40 41 49 61 51 38 37 48 72 276
481 582 367 256 301 57 560 1367 1005 917 845 849 231 86 58 30 6 12 11 9 4 14 12 10 23 53 65 88 67 57 32 29 47 48 59 279
770 702 452 710 939 933 1244 1978 1103 1025 739 752 477 344 299 115 46 35 51 62 55 80 40 31 49 75 77 121 103 84 53 44 49 50 57 154
655 663 644 675 489 405 435 933 634 729 673 955 620 532 506 56 38 27 68 100 106 71 31 81 71 77 109 187 128 120 85 69 63 61 52 55
499 347 178 95 44 33 8 6 20 34 218 355 381 176 38 10 2 2 9 24 36 23 10 55 40 68 88 144 91 64 43 37 33 35 33 39
326 188 145 151 163 101 30 7 2 5 36 143 204 310 187 49 18 16 9 8 8 2 2 6 5 8 15 27 13 5 2 2 5 7 22 64
320 326 329 321 347 416 246 26 13 10 9 8 29 66 31 22 16 17 27 27 34 30 21 14 4 2 3 1 3 4 1 1 1 1 5 90
139 170 246 249 224 274 299 38 40 23 17 26 59 68 58 46 23 22 19 16 21 40 46 39 32 21 15 10 14 9 11 9 8 10 18 80
64 39 40 28 19 31 44 10 14 16 15 20 38 36 38 34 28 24 27 26 37 45 40 30 29 27 26 15 12 17 22 21 16 9 13 28
3 8 8 10 10 8 7 8 10 14 13 10 8 4

Figure 21. SATOB 101 - 400 hPa vector mean wind. AUGUST 2001
All observations
Arrows are plotted where greater than 10 obs are present

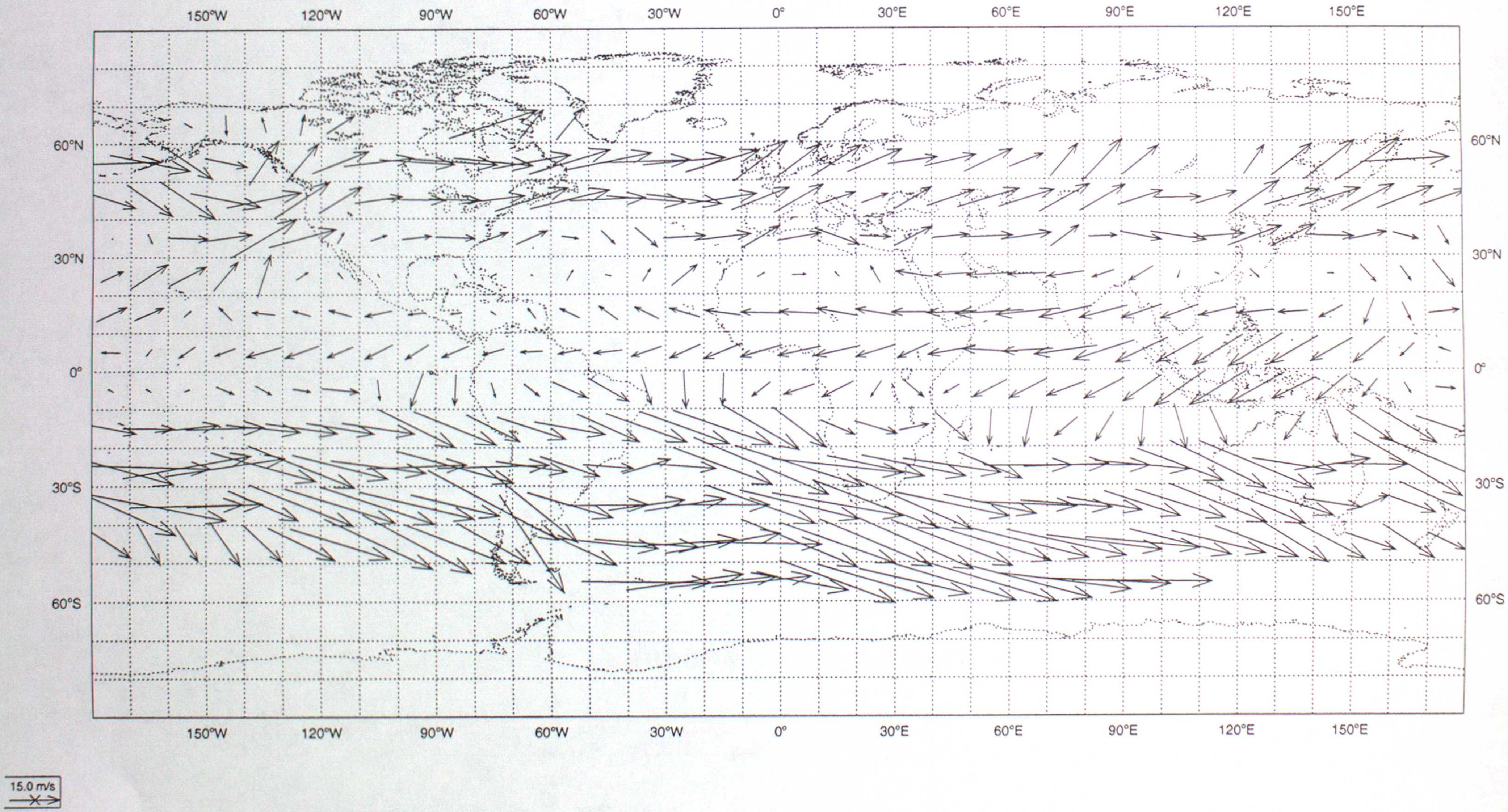

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0 m/s

Figure 22. SATOB 101 - 400 hPa vector wind differences. AUGUST 2001

All observations

Arrows are plotted where greater than 10 obs are present

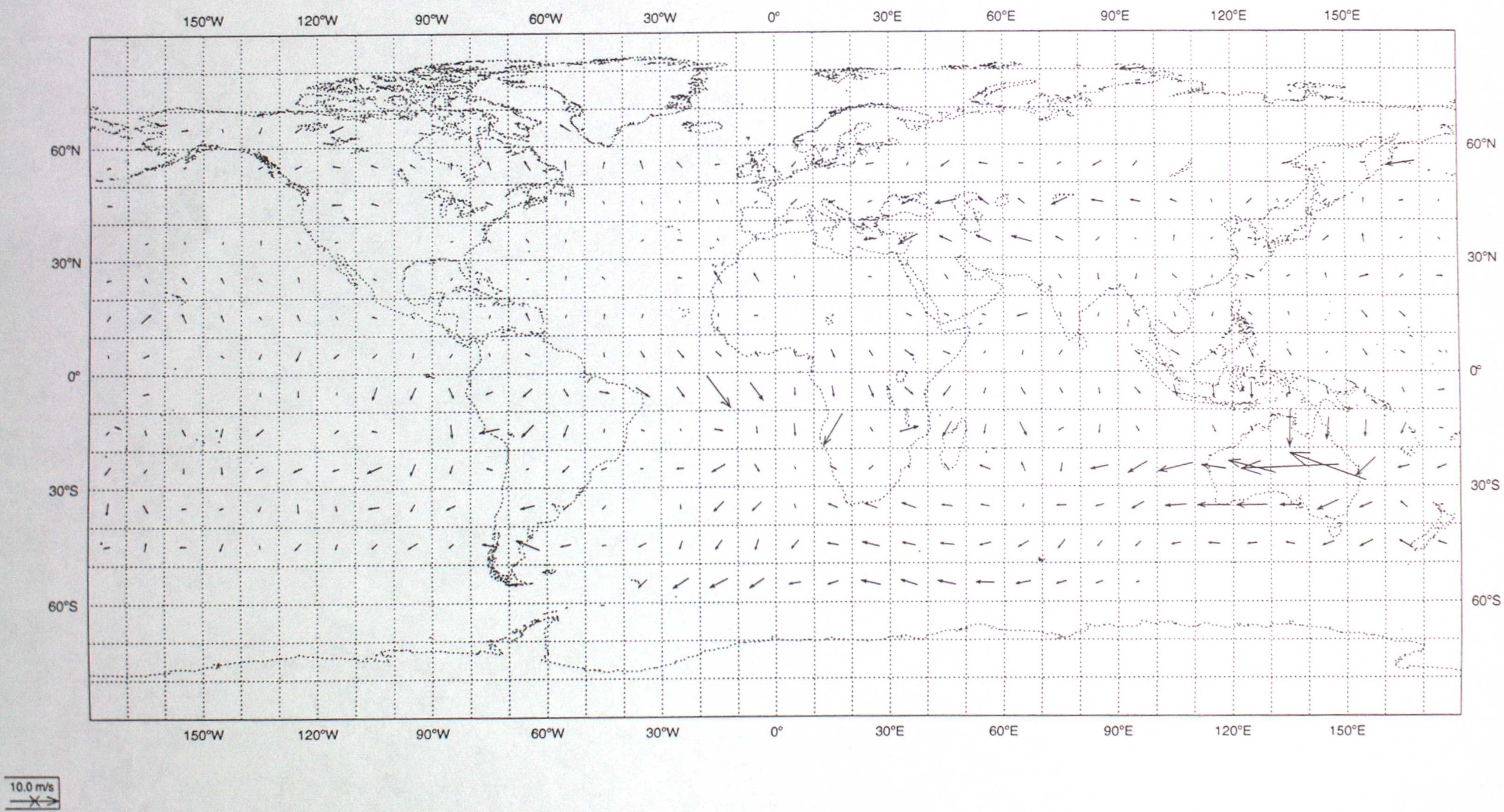

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
10.0 m/s

Figure 23. SATOB 101 - 400 hPa mean O-B speed differences (ms-1). AUGUST 2001

All observations

Values are plotted where greater than 10 obs are present

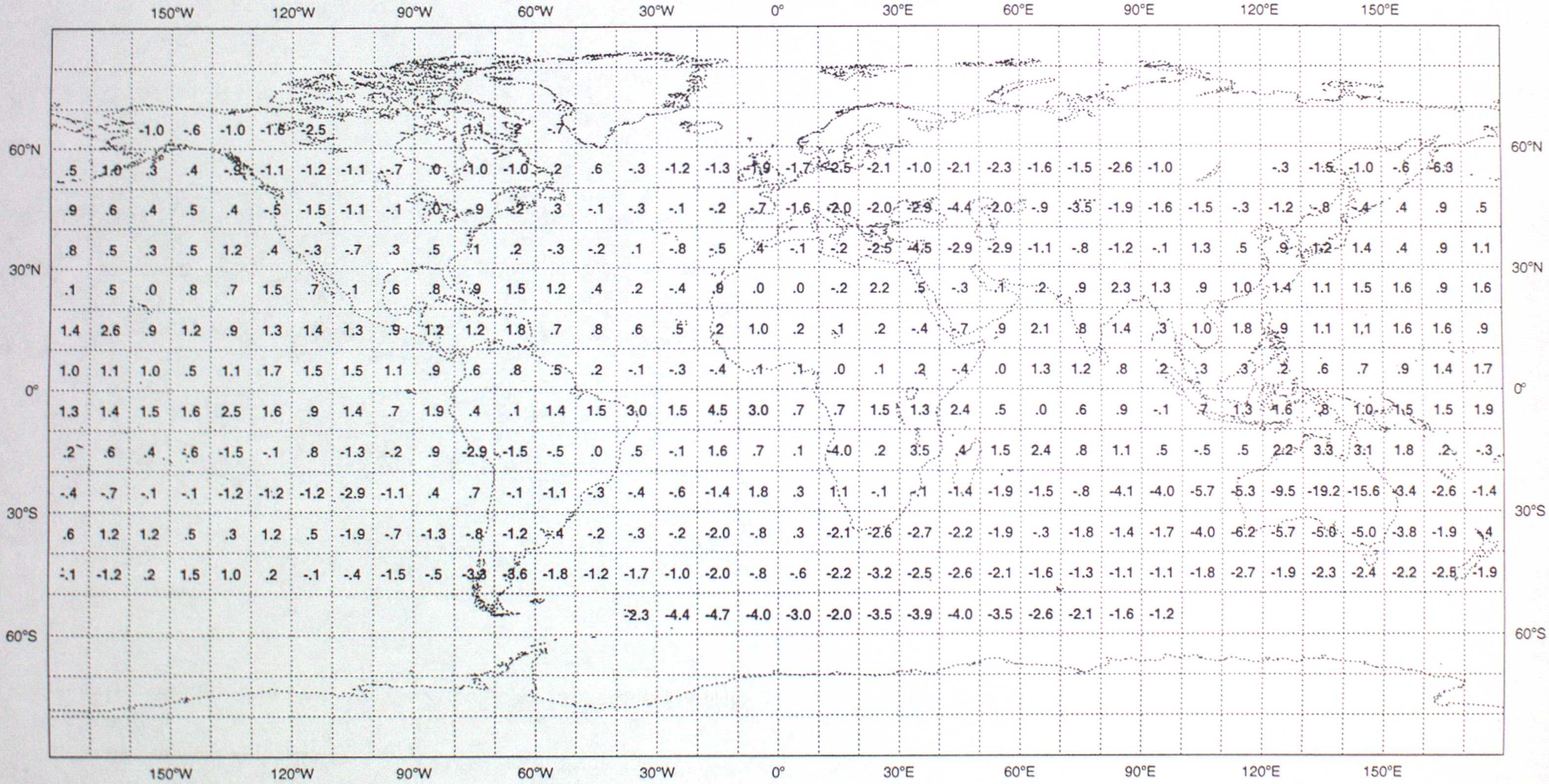
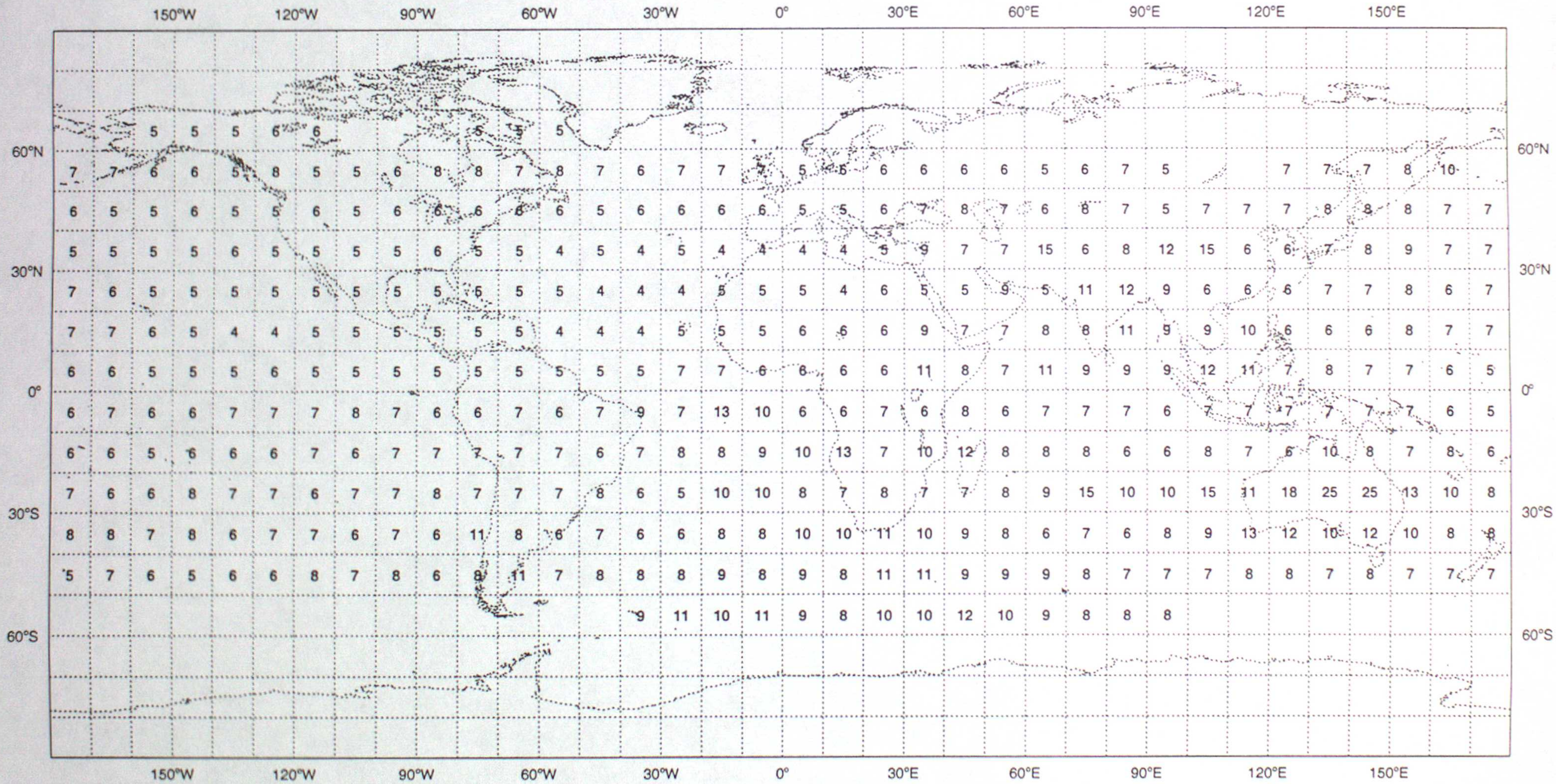

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
-1.0 -.6 -1.0 -1.6 -2.5 1.1 -.2 -.7
.5 1.0 .3 .4 -.8 -1.1 -1.2 -1.1 -.7 .0 -1.0 -1.0 .2 .6 -.3 -1.2 -1.3 -1.9 -1.7 -2.5 -2.1 -1.0 -2.1 -2.3 -1.6 -1.5 -2.6 -1.0 -.3 -1.5 -1.0 -.6 -6.3
.9 .6 .4 .5 .4 -.5 -1.5 -1.1 -.1 .0 -.9 -.2 .3 -.1 -.3 -.1 -.2 -.7 -1.6 -2.0 -2.0 -2.9 -4.4 -2.0 -.9 -3.5 -1.9 -1.6 -1.5 -.3 -1.2 -.8 -.4 .4 .9 .5
.8 .5 .3 .5 1.2 .4 -.3 -.7 .3 .5 .1 .2 -.3 -.2 .1 -.8 -.5 .4 -.1 -.2 -2.5 -4.5 -2.9 -2.9 -1.1 -.8 -1.2 -.1 1.3 .5 .9 1.2 1.4 .4 .9 1.1
.1 .5 .0 .8 .7 1.5 .7 .1 .6 .8 .9 1.5 1.2 .4 .2 -.4 .9 .0 .0 -.2 2.2 .5 -.3 .1 .2 .9 2.3 1.3 .9 1.0 1.4 1.1 1.5 1.6 .9 1.6
1.4 2.6 .9 1.2 .9 1.3 1.4 1.3 .9 1.2 1.2 1.8 .7 .8 .6 .5 .2 1.0 .2 .1 .2 -.4 -.7 .9 2.1 .8 1.4 .3 1.0 1.8 .9 1.1 1.1 1.6 1.6 .9
1.0 1.1 1.0 .5 1.1 1.7 1.5 1.5 1.1 .9 .6 .8 .5 .2 -.1 -.3 -.4 .1 .1 .0 .1 .2 -.4 .0 1.3 1.2 .8 .2 .3 .3 .2 .6 .7 .9 1.4 1.7
1.3 1.4 1.5 1.6 2.5 1.6 .9 1.4 .7 1.9 .4 .1 1.4 1.5 3.0 1.5 4.5 3.0 .7 .7 1.5 1.3 2.4 .5 .0 .6 .9 -.1 .7 1.3 1.6 .8 1.0 1.5 1.5 1.9
.2 .6 .4 -.6 -1.5 -.1 .8 -1.3 -.2 .9 -2.9 -1.5 -.5 .0 .5 -.1 1.6 .7 .1 -4.0 .2 3.5 .4 1.5 2.4 .8 1.1 .5 -.5 .5 2.2 3.3 3.1 1.8 .2 -.3
-.4 -.7 -.1 -.1 -1.2 -1.2 -1.2 -2.9 -1.1 .4 .7 -.1 -1.1 -.3 -.4 -.6 -1.4 1.8 .3 1.1 -.1 -.1 -1.4 -1.9 -1.5 -.8 -4.1 -4.0 -5.7 -5.3 -9.5 -19.2 -15.6 -3.4 -2.6 -1.4
.6 1.2 1.2 .5 .3 1.2 .5 -1.9 -.7 -1.3 -.8 -1.2 -.4 -.2 -.3 -.2 -2.0 -.8 .3 -2.1 -2.6 -2.7 -2.2 -1.9 -.3 -1.8 -1.4 -1.7 -4.0 -6.2 -5.7 -5.0 -5.0 -3.8 -1.9 .4
-.1 -1.2 .2 1.5 1.0 .2 -.1 -.4 -1.5 -.5 -3.3 -3.6 -1.8 -1.2 -1.7 -1.0 -2.0 -.8 -.6 -2.2 -3.2 -2.5 -2.6 -2.1 -1.6 -1.3 -1.1 -1.1 -1.8 -2.7 -1.9 -2.3 -2.4 -2.2 -2.5 -1.9
-2.3 -4.4 -4.7 -4.0 -3.0 -2.0 -3.5 -3.9 -4.0 -3.5 -2.6 -2.1 -1.6 -1.2

Figure 24. SATOB 101 - 400 hPa RMS O-B vector differences (ms-1). AUGUST 2001
All observations
Values are plotted where greater than 10 obs are present


150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
5 5 5 6 6 5 5 5
7 7 6 6 5 8 5 5 6 8 8 7 8 7 6 7 7 7 5 5 6 6 6 6 5 6 7 5 7 7 7 8 10
6 5 5 6 5 5 6 5 6 6 6 6 6 5 6 6 6 6 5 5 6 7 8 7 6 8 7 5 7 7 7 8 8 8 7 7
5 5 5 5 6 5 5 5 5 6 5 5 4 5 4 5 4 4 4 4 5 9 7 7 15 6 8 12 15 6 6 7 8 9 7 7
7 6 5 5 5 5 5 5 5 5 5 5 5 4 4 4 5 5 5 4 6 5 5 9 5 11 12 9 6 6 6 7 7 8 6 7
7 7 6 5 4 4 5 5 5 5 5 5 4 4 4 5 5 5 6 6 6 9 7 7 8 8 11 9 9 10 6 6 6 8 7 7
6 6 5 5 5 6 5 5 5 5 5 5 5 5 5 7 7 6 6 6 6 11 8 7 11 9 9 9 12 11 7 8 7 7 6 5
6 7 6 6 7 7 7 8 7 6 6 7 6 7 9 7 13 10 6 6 7 6 8 6 7 7 7 6 7 7 7 7 7 7 6 5
6 6 5 6 6 6 7 6 7 7 7 7 7 6 7 8 8 9 10 13 7 10 12 8 8 8 6 6 8 7 6 10 8 7 8 6
7 6 6 8 7 7 6 7 7 8 7 7 7 8 6 5 10 10 8 7 8 7 7 8 9 15 10 10 15 11 18 25 25 13 10 8
8 8 7 8 6 7 7 6 7 6 11 8 6 7 6 6 8 8 10 10 11 10 9 8 6 7 6 8 9 13 12 10 12 10 8 8
5 7 6 5 6 6 8 7 8 6 8 11 7 8 8 8 9 8 9 8 11 11 9 9 9 8 7 7 7 8 8 7 8 7 7 7
9 11 10 11 9 8 10 10 12 10 9 8 8 8

MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

MONTH: August 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from NOAA-15 and NOAA-16.

Standard of comparison :Background field from UKMO global model.

Selection Criteria :All soundings.

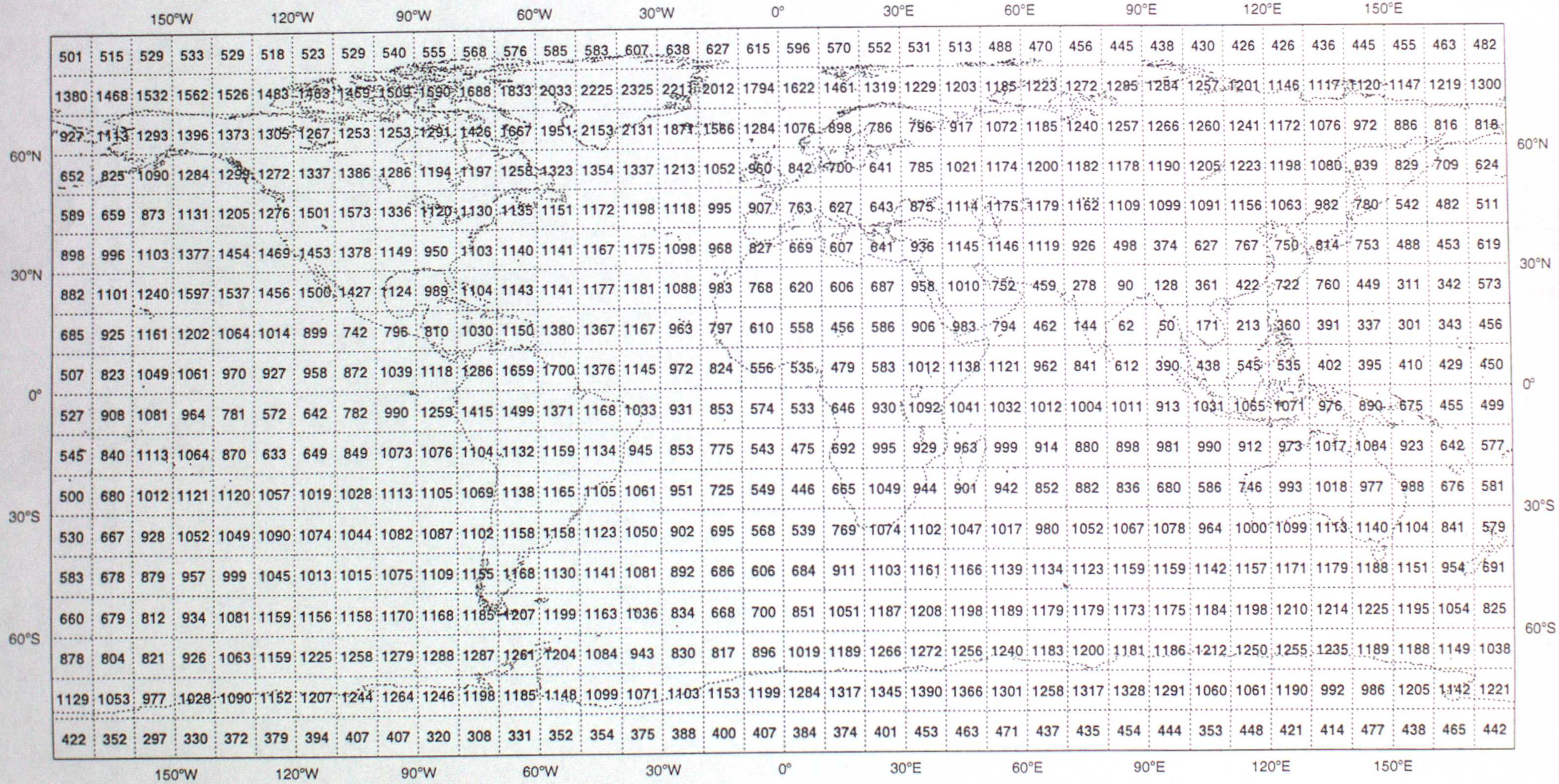
Data Extracted :Sounding channels (and approximate weighting function peaks, hPa)
HIRS8 (Surface)
HIRS15 (700)
HIRS11 (500-700)
HIRS4 (400)
AMSUA5 (700)
AMSUA7 (300)
AMSUA9 (100)

:Mean and standard deviation observation-minus-background brightness temperature differences

Figure 25. ATOVS mean daily count. AUGUST 2001

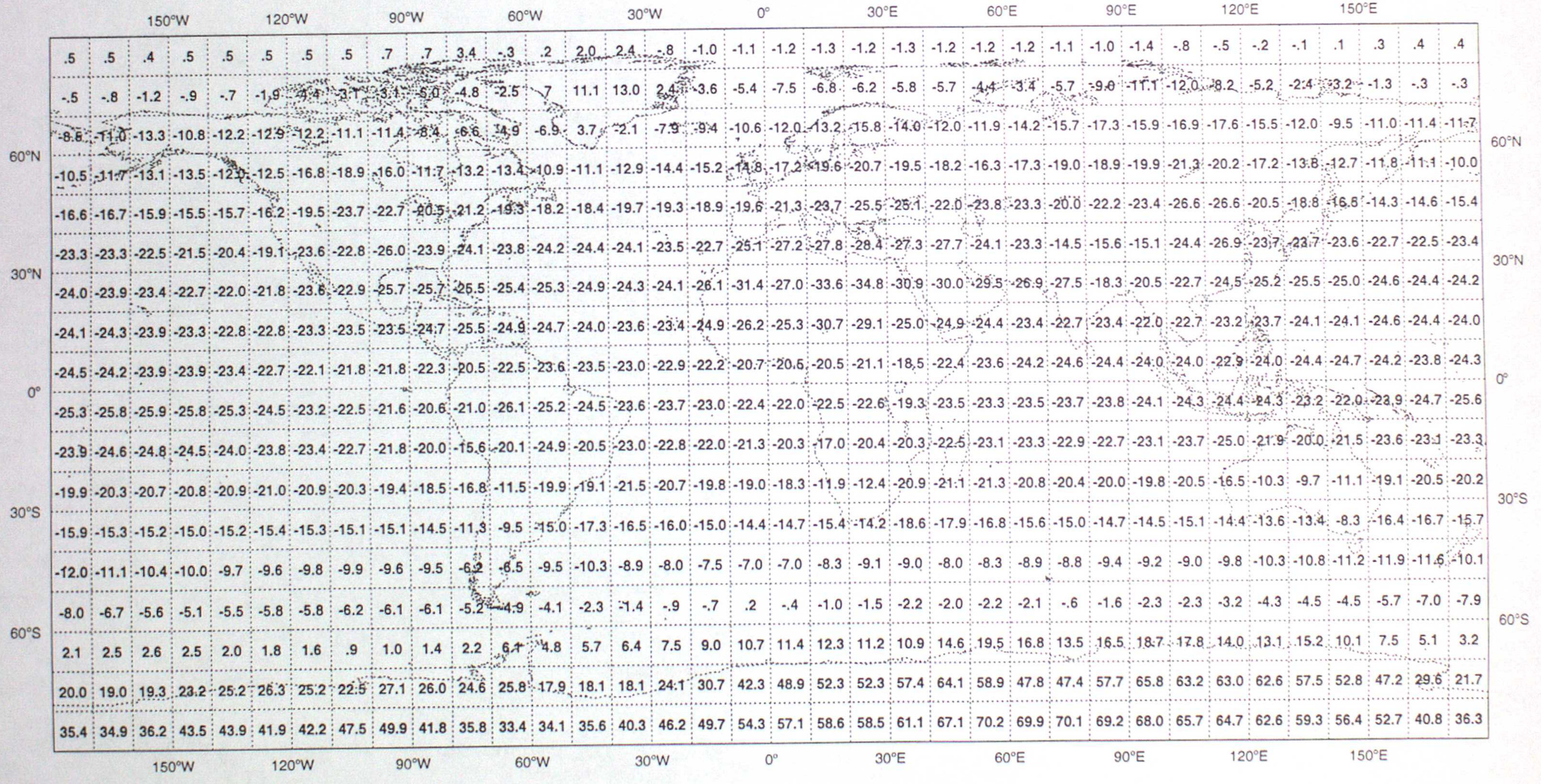
NOAA15, using all observations

Global average number of observations in 24 hours = 618878



501	515	529	533	529	518	523	529	540	555	568	576	585	583	607	638	627	615	596	570	552	531	513	488	470	456	445	438	430	426	426	436	445	455	463	482
1380	1468	1532	1562	1526	1483	1463	1469	1509	1590	1688	1833	2033	2225	2325	2211	2012	1794	1622	1461	1319	1229	1203	1185	1223	1272	1285	1284	1257	1201	1146	1117	1120	1147	1219	1300
927	1113	1293	1396	1373	1305	1267	1253	1253	1291	1426	1667	1951	2153	2131	1871	1586	1284	1076	898	786	796	917	1072	1185	1240	1257	1266	1260	1241	1172	1076	972	886	816	818
652	825	1090	1284	1299	1272	1337	1386	1286	1194	1197	1258	1323	1354	1337	1213	1052	960	842	700	641	785	1021	1174	1200	1182	1178	1190	1205	1223	1198	1080	939	829	709	624
589	659	873	1131	1205	1276	1501	1573	1336	1120	1130	1135	1151	1172	1198	1118	995	907	763	627	643	875	1114	1175	1179	1162	1109	1099	1091	1156	1063	982	780	542	482	511
898	996	1103	1377	1454	1469	1453	1378	1149	950	1103	1140	1141	1167	1175	1098	968	827	669	607	641	936	1145	1146	1119	926	498	374	627	767	750	814	753	488	453	619
882	1101	1240	1597	1537	1456	1500	1427	1124	989	1104	1143	1141	1177	1181	1088	983	768	620	606	687	958	1010	752	459	278	90	128	361	422	722	760	449	311	342	573
685	925	1161	1202	1064	1014	899	742	796	810	1030	1150	1380	1367	1167	963	797	610	558	456	586	906	983	794	462	144	62	50	171	213	360	391	337	301	343	456
507	823	1049	1061	970	927	958	872	1039	1118	1286	1659	1700	1376	1145	972	824	556	535	479	583	1012	1138	1121	962	841	612	390	438	545	535	402	395	410	429	450
527	908	1081	964	781	572	642	782	990	1259	1415	1499	1371	1168	1033	931	853	574	533	646	930	1092	1041	1032	1012	1004	1011	913	1031	1065	1071	976	890	675	455	499
545	840	1113	1064	870	633	649	849	1073	1076	1104	1132	1159	1134	945	853	775	543	475	692	995	929	963	999	914	880	898	981	990	912	973	1017	1084	923	642	577
500	680	1012	1121	1120	1057	1019	1028	1113	1105	1069	1138	1165	1105	1061	951	725	549	446	665	1049	944	901	942	852	882	836	680	586	746	993	1018	977	988	676	581
530	667	928	1052	1049	1090	1074	1044	1082	1087	1102	1158	1158	1123	1050	902	695	568	539	769	1074	1102	1047	1017	980	1052	1067	1078	964	1000	1099	1113	1140	1104	841	579
583	678	879	957	999	1045	1013	1015	1075	1109	1155	1168	1130	1141	1081	892	686	606	684	911	1103	1161	1166	1139	1134	1123	1159	1159	1142	1157	1171	1179	1188	1151	954	691
660	679	812	934	1081	1159	1156	1158	1170	1168	1185	1207	1199	1163	1036	834	668	700	851	1051	1187	1208	1198	1189	1179	1179	1173	1175	1184	1198	1210	1214	1225	1195	1054	825
878	804	821	926	1063	1159	1225	1258	1279	1288	1287	1261	1204	1084	943	830	817	896	1019	1189	1266	1272	1256	1240	1183	1200	1181	1186	1212	1250	1255	1235	1189	1188	1149	1038
1129	1053	977	1028	1090	1152	1207	1244	1264	1246	1198	1185	1148	1099	1071	1103	1153	1199	1284	1317	1345	1390	1366	1301	1258	1317	1328	1291	1060	1061	1190	992	986	1205	1142	1221
422	352	297	330	372	379	394	407	407	320	308	331	352	354	375	388	400	407	384	374	401	453	463	471	437	435	454	444	353	448	421	414	477	438	465	442

Figure 26. ATOVS MEAN O-B brightness temperature differences (deg C). AUGUST 2001
Channel: HIRS8 (Surface)
NOAA15, using all observations

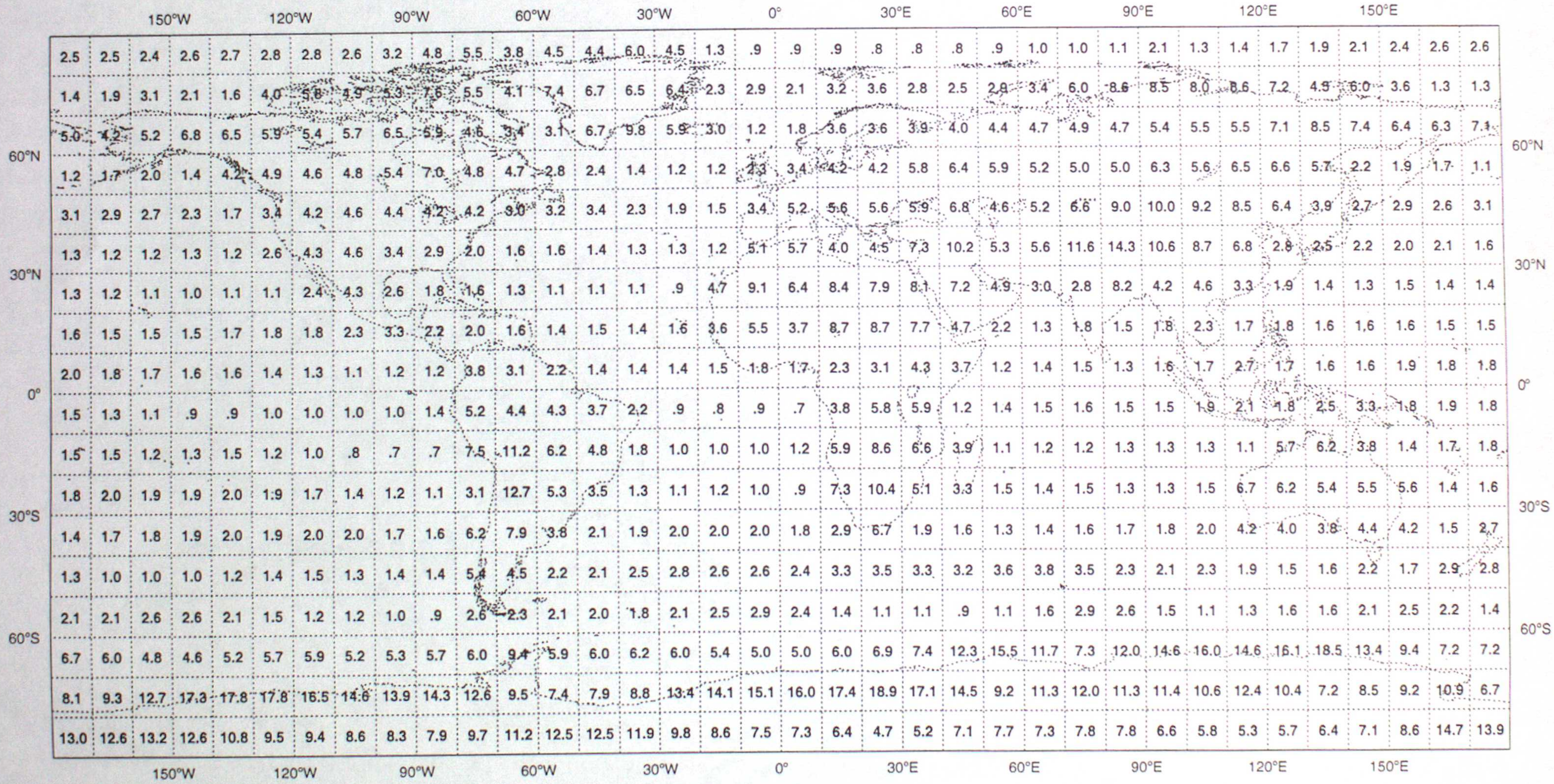


.5	.5	.4	.5	.5	.5	.5	.5	.7	.7	3.4	-.3	.2	2.0	2.4	-.8	-1.0	-1.1	-1.2	-1.3	-1.2	-1.3	-1.2	-1.2	-1.2	-1.1	-1.0	-1.4	-.8	-.5	-.2	-.1	.1	.3	.4	.4
-.5	-.8	-1.2	-.9	-.7	-1.9	-4.4	-3.1	-3.1	-6.0	-4.8	-2.5	7	11.1	13.0	2.4	-3.6	-5.4	-7.5	-6.8	-6.2	-5.8	-5.7	-4.4	-3.4	-5.7	-9.0	-11.1	-12.0	-8.2	-5.2	-2.4	-3.2	-1.3	-.3	-.3
-8.6	-11.0	-13.3	-10.8	-12.2	-12.9	-12.2	-11.1	-11.4	-8.4	-6.6	-4.9	-6.9	3.7	-2.1	-7.9	-9.4	-10.6	-12.0	-13.2	-15.8	-14.0	-12.0	-11.9	-14.2	-15.7	-17.3	-15.9	-16.9	-17.6	-15.5	-12.0	-9.5	-11.0	-11.4	-11.7
-10.5	-11.7	-13.1	-13.5	-12.0	-12.5	-16.8	-18.9	-16.0	-11.7	-13.2	-13.4	-10.9	-11.1	-12.9	-14.4	-15.2	-14.8	-17.2	-19.6	-20.7	-19.5	-18.2	-16.3	-17.3	-19.0	-18.9	-19.9	-21.3	-20.2	-17.2	-13.8	-12.7	-11.8	-11.1	-10.0
-16.6	-16.7	-15.9	-15.5	-15.7	-16.2	-19.5	-23.7	-22.7	-20.5	-21.2	-19.3	-18.2	-18.4	-19.7	-19.3	-18.9	-19.6	-21.3	-23.7	-25.5	-25.1	-22.0	-23.8	-23.3	-20.0	-22.2	-23.4	-26.6	-26.6	-20.5	-18.8	-16.6	-14.3	-14.6	-15.4
-23.3	-23.3	-22.5	-21.5	-20.4	-19.1	-23.6	-22.8	-26.0	-23.9	-24.1	-23.8	-24.2	-24.4	-24.1	-23.5	-22.7	-25.1	-27.2	-27.8	-28.4	-27.3	-27.7	-24.1	-23.3	-14.5	-15.6	-15.1	-24.4	-26.9	-23.7	-23.7	-23.6	-22.7	-22.5	-23.4
-24.0	-23.9	-23.4	-22.7	-22.0	-21.8	-23.6	-22.9	-25.7	-25.7	-25.5	-25.4	-25.3	-24.9	-24.3	-24.1	-26.1	-31.4	-27.0	-33.6	-34.8	-30.9	-30.0	-29.5	-26.9	-27.5	-18.3	-20.5	-22.7	-24.5	-25.2	-25.5	-25.0	-24.6	-24.4	-24.2
-24.1	-24.3	-23.9	-23.3	-22.8	-22.8	-23.3	-23.5	-23.5	-24.7	-25.5	-24.9	-24.7	-24.0	-23.6	-23.4	-24.9	-26.2	-25.3	-30.7	-29.1	-25.0	-24.9	-24.4	-23.4	-22.7	-23.4	-22.0	-22.7	-23.2	-23.7	-24.1	-24.1	-24.6	-24.4	-24.0
-24.5	-24.2	-23.9	-23.9	-23.4	-22.7	-22.1	-21.8	-21.8	-22.3	-20.5	-22.5	-23.6	-23.5	-23.0	-22.9	-22.2	-20.7	-20.6	-20.5	-21.1	-18.5	-22.4	-23.6	-24.2	-24.6	-24.4	-24.0	-24.0	-22.9	-24.0	-24.4	-24.7	-24.2	-23.8	-24.3
-25.3	-25.8	-25.9	-25.8	-25.3	-24.5	-23.2	-22.5	-21.6	-20.6	-21.0	-26.1	-25.2	-24.5	-23.6	-23.7	-23.0	-22.4	-22.0	-22.5	-22.6	-19.3	-23.5	-23.3	-23.5	-23.7	-23.8	-24.1	-24.3	-24.4	-24.3	-23.2	-22.0	-23.9	-24.7	-25.6
-23.9	-24.6	-24.8	-24.5	-24.0	-23.8	-23.4	-22.7	-21.8	-20.0	-15.6	-20.1	-24.9	-20.5	-23.0	-22.8	-22.0	-21.3	-20.3	-17.0	-20.4	-20.3	-22.5	-23.1	-23.3	-22.9	-22.7	-23.1	-23.7	-25.0	-21.9	-20.0	-21.5	-23.6	-23.1	-23.3
-19.9	-20.3	-20.7	-20.8	-20.9	-21.0	-20.9	-20.3	-19.4	-18.5	-16.8	-11.5	-19.9	-19.1	-21.5	-20.7	-19.8	-19.0	-18.3	-11.9	-12.4	-20.9	-21.1	-21.3	-20.8	-20.4	-20.0	-19.8	-20.5	-16.5	-10.3	-9.7	-11.1	-19.1	-20.5	-20.2
-15.9	-15.3	-15.2	-15.0	-15.2	-15.4	-15.3	-15.1	-15.1	-14.5	-11.3	-9.5	-15.0	-17.3	-16.5	-16.0	-15.0	-14.4	-14.7	-15.4	-14.2	-18.6	-17.9	-16.8	-15.6	-15.0	-14.7	-14.5	-15.1	-14.4	-13.6	-13.4	-8.3	-16.4	-16.7	-15.7
-12.0	-11.1	-10.4	-10.0	-9.7	-9.6	-9.8	-9.9	-9.6	-9.5	-6.2	-6.5	-9.5	-10.3	-8.9	-8.0	-7.5	-7.0	-7.0	-8.3	-9.1	-9.0	-8.0	-8.3	-8.9	-8.8	-9.4	-9.2	-9.0	-9.8	-10.3	-10.8	-11.2	-11.9	-11.6	-10.1
-8.0	-6.7	-5.6	-5.1	-5.5	-5.8	-5.8	-6.2	-6.1	-6.1	-5.2	-4.9	-4.1	-2.3	-1.4	-.9	-.7	.2	-.4	-1.0	-1.5	-2.2	-2.0	-2.2	-2.1	-.6	-1.6	-2.3	-2.3	-3.2	-4.3	-4.5	-4.5	-5.7	-7.0	-7.9
2.1	2.5	2.6	2.5	2.0	1.8	1.6	.9	1.0	1.4	2.2	6.1	4.8	5.7	6.4	7.5	9.0	10.7	11.4	12.3	11.2	10.9	14.6	19.5	16.8	13.5	16.5	18.7	17.8	14.0	13.1	15.2	10.1	7.5	5.1	3.2
20.0	19.0	19.3	23.2	25.2	26.3	25.2	22.5	27.1	26.0	24.6	25.8	17.9	18.1	18.1	24.1	30.7	42.3	48.9	52.3	52.3	57.4	64.1	58.9	47.8	47.4	57.7	65.8	63.2	63.0	62.6	57.5	52.8	47.2	29.6	21.7
35.4	34.9	36.2	43.5	43.9	41.9	42.2	47.5	49.9	41.8	35.8	33.4	34.1	35.6	40.3	46.2	49.7	54.3	57.1	58.6	58.5	61.1	67.1	70.2	69.9	70.1	69.2	68.0	65.7	64.7	62.6	59.3	56.4	52.7	40.8	36.3

Figure 27. ATOVS SD O-B brightness temperature differences (deg C). AUGUST 2001

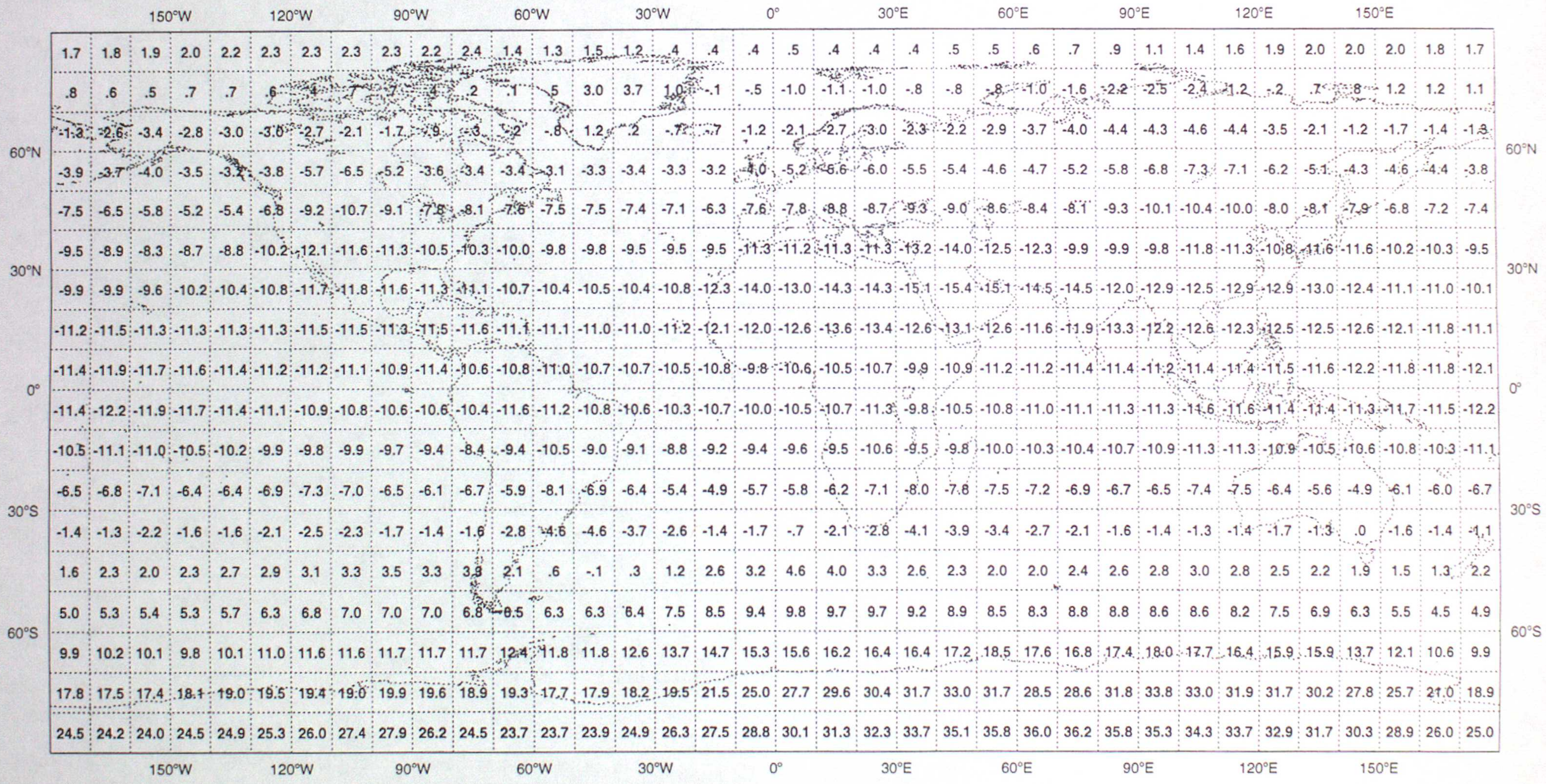
Channel: HIRS8 (Surface)

NOAA15, using all observations



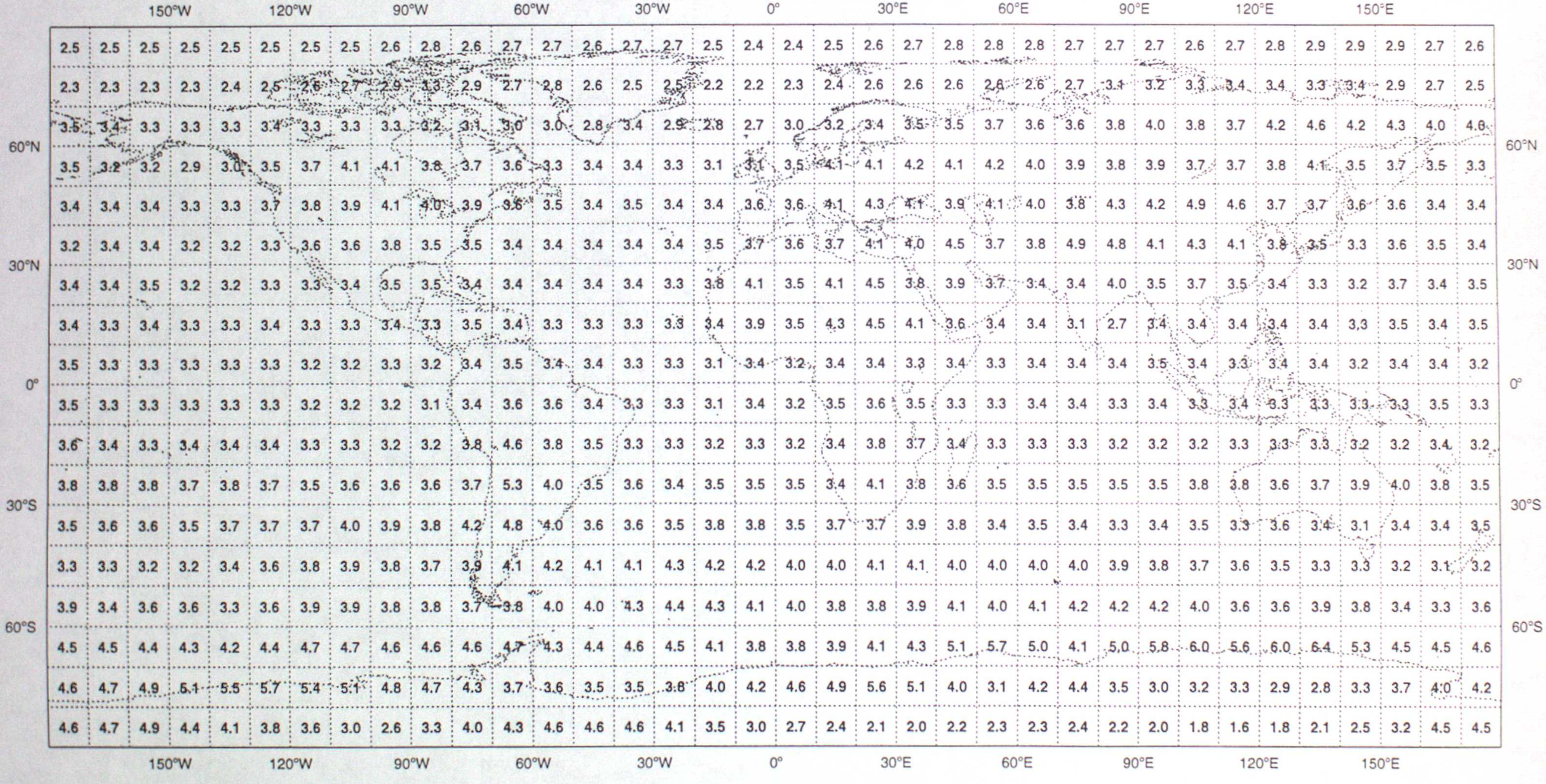
2.5	2.5	2.4	2.6	2.7	2.8	2.8	2.6	3.2	4.8	5.5	3.8	4.5	4.4	6.0	4.5	1.3	.9	.9	.9	.8	.8	.8	.9	1.0	1.0	1.1	2.1	1.3	1.4	1.7	1.9	2.1	2.4	2.6	2.6
1.4	1.9	3.1	2.1	1.6	4.0	5.8	4.9	5.3	7.6	5.5	4.1	7.4	6.7	6.5	6.4	2.3	2.9	2.1	3.2	3.6	2.8	2.5	2.8	3.4	6.0	8.6	8.5	8.0	8.6	7.2	4.5	6.0	3.6	1.3	1.3
5.0	4.2	5.2	6.8	6.5	5.9	5.4	5.7	6.5	5.9	4.6	3.4	3.1	6.7	9.8	5.9	3.0	1.2	1.8	3.6	3.6	3.9	4.0	4.4	4.7	4.9	4.7	5.4	5.5	5.5	7.1	8.5	7.4	6.4	6.3	7.1
1.2	1.7	2.0	1.4	4.2	4.9	4.6	4.8	5.4	7.0	4.8	4.7	2.8	2.4	1.4	1.2	1.2	2.3	3.4	4.2	4.2	5.8	6.4	5.9	5.2	5.0	5.0	6.3	5.6	6.5	6.6	5.7	2.2	1.9	1.7	1.1
3.1	2.9	2.7	2.3	1.7	3.4	4.2	4.6	4.4	4.2	4.2	3.0	3.2	3.4	2.3	1.9	1.5	3.4	5.2	5.6	5.6	5.9	6.8	4.6	5.2	6.6	9.0	10.0	9.2	8.5	6.4	3.9	2.7	2.9	2.6	3.1
1.3	1.2	1.2	1.3	1.2	2.6	4.3	4.6	3.4	2.9	2.0	1.6	1.6	1.4	1.3	1.3	1.2	5.1	5.7	4.0	4.5	7.3	10.2	5.3	5.6	11.6	14.3	10.6	8.7	6.8	2.8	2.5	2.2	2.0	2.1	1.6
1.3	1.2	1.1	1.0	1.1	1.1	2.4	4.3	2.6	1.8	1.6	1.3	1.1	1.1	1.1	.9	4.7	9.1	6.4	8.4	7.9	8.1	7.2	4.9	3.0	2.8	8.2	4.2	4.6	3.3	1.9	1.4	1.3	1.5	1.4	1.4
1.6	1.5	1.5	1.5	1.7	1.8	1.8	2.3	3.3	2.2	2.0	1.6	1.4	1.5	1.4	1.6	3.6	5.5	3.7	8.7	8.7	7.7	4.7	2.2	1.3	1.8	1.5	1.8	2.3	1.7	1.8	1.6	1.6	1.6	1.5	1.5
2.0	1.8	1.7	1.6	1.6	1.4	1.3	1.1	1.2	1.2	3.8	3.1	2.2	1.4	1.4	1.4	1.5	1.8	1.7	2.3	3.1	4.3	3.7	1.2	1.4	1.5	1.3	1.6	1.7	2.7	1.7	1.6	1.6	1.9	1.8	1.8
1.5	1.3	1.1	.9	.9	1.0	1.0	1.0	1.0	1.4	5.2	4.4	4.3	3.7	2.2	.9	.8	.9	.7	3.8	5.8	5.9	1.2	1.4	1.5	1.6	1.5	1.5	1.9	2.1	1.8	2.5	3.3	1.8	1.9	1.8
1.5	1.5	1.2	1.3	1.5	1.2	1.0	.8	.7	.7	7.5	11.2	6.2	4.8	1.8	1.0	1.0	1.0	1.2	5.9	8.6	6.6	3.9	1.1	1.2	1.2	1.3	1.3	1.3	1.1	5.7	6.2	3.8	1.4	1.7	1.8
1.8	2.0	1.9	1.9	2.0	1.9	1.7	1.4	1.2	1.1	3.1	12.7	5.3	3.5	1.3	1.1	1.2	1.0	.9	7.3	10.4	5.1	3.3	1.5	1.4	1.5	1.3	1.3	1.5	6.7	6.2	5.4	5.5	5.6	1.4	1.6
1.4	1.7	1.8	1.9	2.0	1.9	2.0	2.0	1.7	1.6	6.2	7.9	3.8	2.1	1.9	2.0	2.0	2.0	1.8	2.9	6.7	1.9	1.6	1.3	1.4	1.6	1.7	1.8	2.0	4.2	4.0	3.8	4.4	4.2	1.5	2.7
1.3	1.0	1.0	1.0	1.2	1.4	1.5	1.3	1.4	1.4	5.4	4.5	2.2	2.1	2.5	2.8	2.6	2.6	2.4	3.3	3.5	3.3	3.2	3.6	3.8	3.5	2.3	2.1	2.3	1.9	1.5	1.6	2.2	1.7	2.9	2.8
2.1	2.1	2.6	2.6	2.1	1.5	1.2	1.2	1.0	.9	2.6	2.3	2.1	2.0	1.8	2.1	2.5	2.9	2.4	1.4	1.1	1.1	.9	1.1	1.6	2.9	2.6	1.5	1.1	1.3	1.6	1.6	2.1	2.5	2.2	1.4
6.7	6.0	4.8	4.6	5.2	5.7	5.9	5.2	5.3	5.7	6.0	9.4	5.9	6.0	6.2	6.0	5.4	5.0	5.0	6.0	6.9	7.4	12.3	15.5	11.7	7.3	12.0	14.6	16.0	14.6	16.1	18.5	13.4	9.4	7.2	7.2
8.1	9.3	12.7	17.3	17.8	17.8	16.5	14.6	13.9	14.3	12.6	9.5	7.4	7.9	8.8	13.4	14.1	15.1	16.0	17.4	18.9	17.1	14.5	9.2	11.3	12.0	11.3	11.4	10.6	12.4	10.4	7.2	8.5	9.2	10.9	6.7
13.0	12.6	13.2	12.6	10.8	9.5	9.4	8.6	8.3	7.9	9.7	11.2	12.5	12.5	11.9	9.8	8.6	7.5	7.3	6.4	4.7	5.2	7.1	7.7	7.3	7.8	7.8	6.6	5.8	5.3	5.7	6.4	7.1	8.6	14.7	13.9

Figure 28. ATOVS MEAN O-B brightness temperature differences (deg C). AUGUST 2001
Channel: HIRS15 (700 hPa)
NOAA15, using all observations



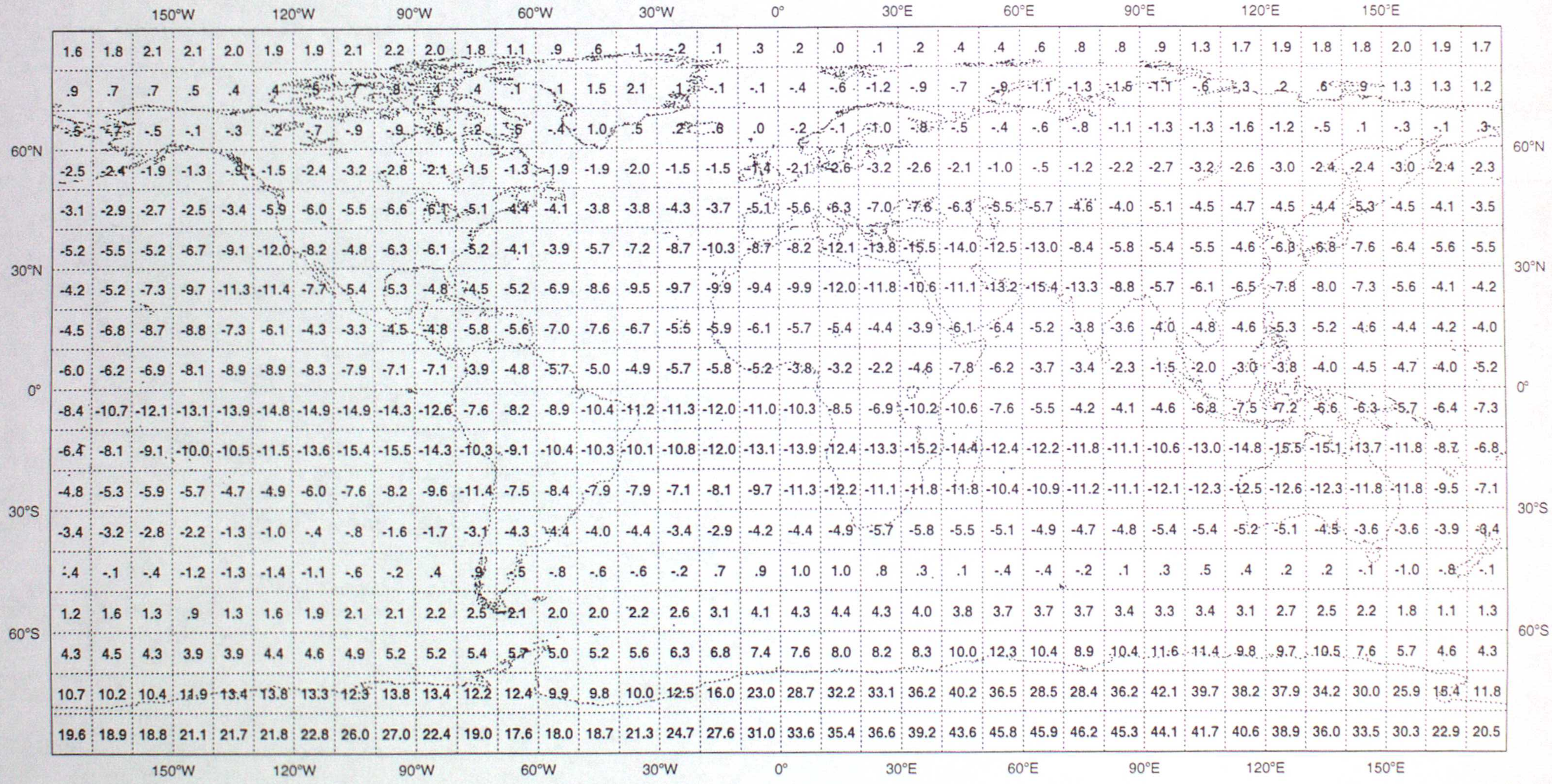
1.7	1.8	1.9	2.0	2.2	2.3	2.3	2.3	2.3	2.2	2.4	1.4	1.3	1.5	1.2	.4	.4	.4	.5	.4	.4	.4	.5	.5	.6	.7	.9	1.1	1.4	1.6	1.9	2.0	2.0	2.0	1.8	1.7
.8	.6	.5	.7	.7	.6	.4	.7	.7	.4	.2	.1	.5	3.0	3.7	1.0	-.1	-.5	-1.0	-1.1	-1.0	-.8	-.8	-.8	-1.0	-1.6	-2.2	-2.5	-2.4	-1.2	-.2	.7	.8	1.2	1.2	1.1
-1.3	-2.6	-3.4	-2.8	-3.0	-3.0	-2.7	-2.1	-1.7	-.9	-.3	-.2	-.8	1.2	.2	-.7	-.7	-1.2	-2.1	-2.7	-3.0	-2.3	-2.2	-2.9	-3.7	-4.0	-4.4	-4.3	-4.6	-4.4	-3.5	-2.1	-1.2	-1.7	-1.4	-1.3
-3.9	-3.7	-4.0	-3.5	-3.2	-3.8	-5.7	-6.5	-5.2	-3.6	-3.4	-3.4	-3.1	-3.3	-3.4	-3.3	-3.2	-4.0	-5.2	-5.6	-6.0	-5.5	-5.4	-4.6	-4.7	-5.2	-5.8	-6.8	-7.3	-7.1	-6.2	-5.1	-4.3	-4.6	-4.4	-3.8
-7.5	-6.5	-5.8	-5.2	-5.4	-6.8	-9.2	-10.7	-9.1	-7.8	-8.1	-7.6	-7.5	-7.5	-7.4	-7.1	-6.3	-7.6	-7.8	-8.8	-8.7	-9.3	-9.0	-8.6	-8.4	-8.1	-9.3	-10.1	-10.4	-10.0	-8.0	-8.1	-7.9	-6.8	-7.2	-7.4
-9.5	-8.9	-8.3	-8.7	-8.8	-10.2	-12.1	-11.6	-11.3	-10.5	-10.3	-10.0	-9.8	-9.8	-9.5	-9.5	-9.5	-11.3	-11.2	-11.3	-11.3	-13.2	-14.0	-12.5	-12.3	-9.9	-9.9	-9.8	-11.8	-11.3	-10.8	-11.6	-11.6	-10.2	-10.3	-9.5
-9.9	-9.9	-9.6	-10.2	-10.4	-10.8	-11.7	-11.8	-11.6	-11.3	-11.1	-10.7	-10.4	-10.5	-10.4	-10.8	-12.3	-14.0	-13.0	-14.3	-14.3	-15.1	-15.4	-15.1	-14.5	-14.5	-12.0	-12.9	-12.5	-12.9	-12.9	-13.0	-12.4	-11.1	-11.0	-10.1
-11.2	-11.5	-11.3	-11.3	-11.3	-11.3	-11.5	-11.5	-11.3	-11.5	-11.6	-11.1	-11.1	-11.0	-11.0	-11.2	-12.1	-12.0	-12.6	-13.6	-13.4	-12.6	-13.1	-12.6	-11.6	-11.9	-13.3	-12.2	-12.6	-12.3	-12.5	-12.5	-12.6	-12.1	-11.8	-11.1
-11.4	-11.9	-11.7	-11.6	-11.4	-11.2	-11.2	-11.1	-10.9	-11.4	-10.6	-10.8	-11.0	-10.7	-10.7	-10.5	-10.8	-9.8	-10.6	-10.5	-10.7	-9.9	-10.9	-11.2	-11.2	-11.4	-11.4	-11.2	-11.4	-11.4	-11.5	-11.6	-12.2	-11.8	-11.8	-12.1
-11.4	-12.2	-11.9	-11.7	-11.4	-11.1	-10.9	-10.8	-10.6	-10.6	-10.4	-11.6	-11.2	-10.8	-10.6	-10.3	-10.7	-10.0	-10.5	-10.7	-11.3	-9.8	-10.5	-10.8	-11.0	-11.1	-11.3	-11.3	-11.6	-11.6	-11.4	-11.4	-11.3	-11.7	-11.5	-12.2
-10.5	-11.1	-11.0	-10.5	-10.2	-9.9	-9.8	-9.9	-9.7	-9.4	-8.4	-9.4	-10.5	-9.0	-9.1	-8.8	-9.2	-9.4	-9.6	-9.5	-10.6	-9.5	-9.8	-10.0	-10.3	-10.4	-10.7	-10.9	-11.3	-11.3	-10.9	-10.5	-10.6	-10.8	-10.3	-11.1
-6.5	-6.8	-7.1	-6.4	-6.4	-6.9	-7.3	-7.0	-6.5	-6.1	-6.7	-5.9	-8.1	-6.9	-6.4	-5.4	-4.9	-5.7	-5.8	-6.2	-7.1	-8.0	-7.8	-7.5	-7.2	-6.9	-6.7	-6.5	-7.4	-7.5	-6.4	-5.6	-4.9	-6.1	-6.0	-6.7
-1.4	-1.3	-2.2	-1.6	-1.6	-2.1	-2.5	-2.3	-1.7	-1.4	-1.6	-2.8	-4.6	-4.6	-3.7	-2.6	-1.4	-1.7	-.7	-2.1	-2.8	-4.1	-3.9	-3.4	-2.7	-2.1	-1.6	-1.4	-1.3	-1.4	-1.7	-1.3	.0	-1.6	-1.4	-1.1
1.6	2.3	2.0	2.3	2.7	2.9	3.1	3.3	3.5	3.3	3.3	2.1	.6	-.1	.3	1.2	2.6	3.2	4.6	4.0	3.3	2.6	2.3	2.0	2.0	2.4	2.6	2.8	3.0	2.8	2.5	2.2	1.9	1.5	1.3	2.2
5.0	5.3	5.4	5.3	5.7	6.3	6.8	7.0	7.0	7.0	6.8	6.5	6.3	6.3	6.4	7.5	8.5	9.4	9.8	9.7	9.7	9.2	8.9	8.5	8.3	8.8	8.8	8.6	8.6	8.2	7.5	6.9	6.3	5.5	4.5	4.9
9.9	10.2	10.1	9.8	10.1	11.0	11.6	11.6	11.7	11.7	11.7	12.4	11.8	11.8	12.6	13.7	14.7	15.3	15.6	16.2	16.4	16.4	17.2	18.5	17.6	16.8	17.4	18.0	17.7	16.4	15.9	15.9	13.7	12.1	10.6	9.9
17.8	17.5	17.4	18.1	19.0	19.5	19.4	19.0	19.9	19.6	18.9	19.3	17.7	17.9	18.2	19.5	21.5	25.0	27.7	29.6	30.4	31.7	33.0	31.7	28.5	28.6	31.8	33.8	33.0	31.9	31.7	30.2	27.8	25.7	21.0	18.9
24.5	24.2	24.0	24.5	24.9	25.3	26.0	27.4	27.9	26.2	24.5	23.7	23.7	23.9	24.9	26.3	27.5	28.8	30.1	31.3	32.3	33.7	35.1	35.8	36.0	36.2	35.8	35.3	34.3	33.7	32.9	31.7	30.3	28.9	26.0	25.0

Figure 29. ATOVS SD O-B brightness temperature differences (deg C). AUGUST 2001
Channel: HIRS15 (700 hPa)
NOAA15, using all observations



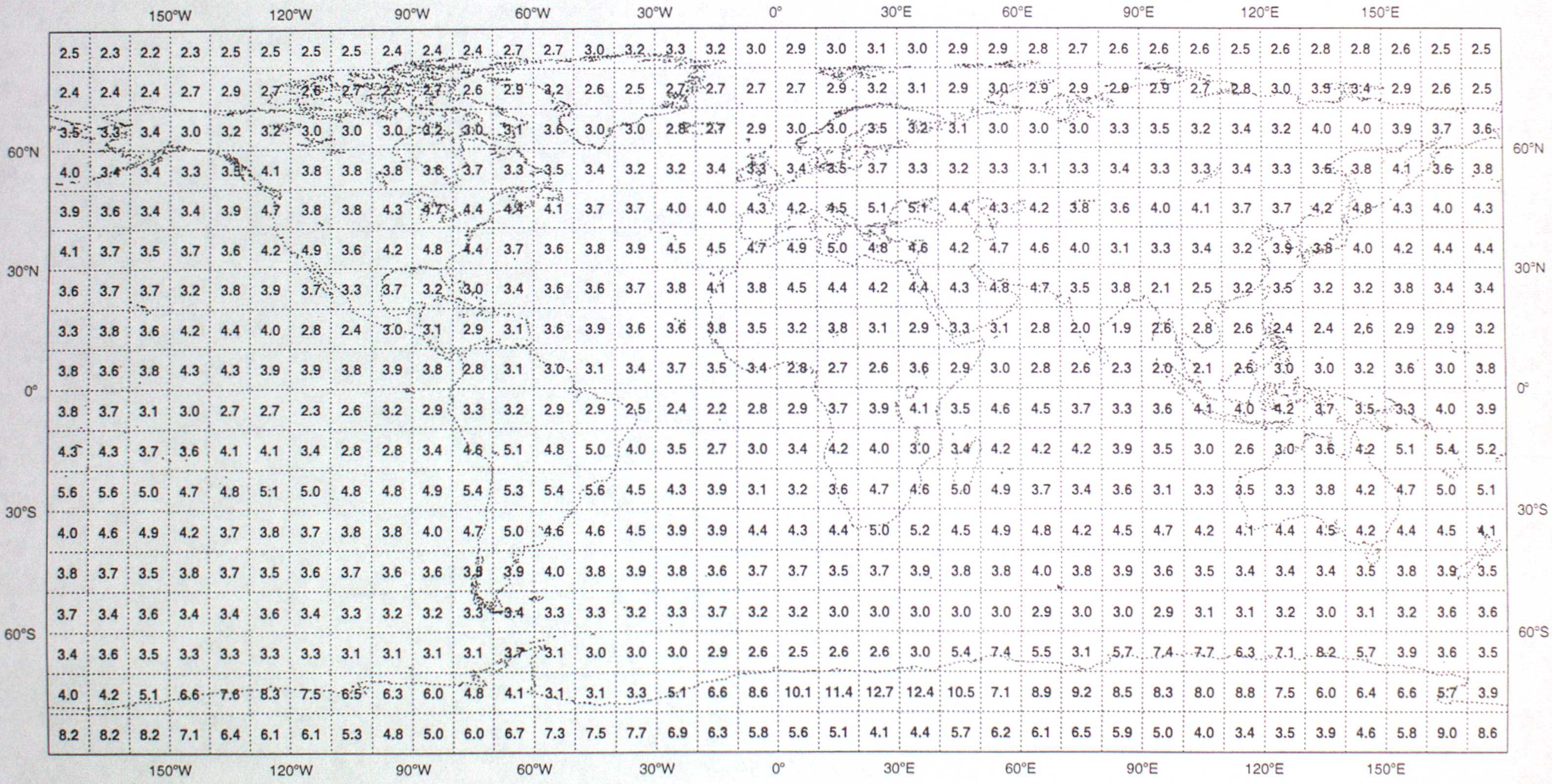
2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.8	2.6	2.7	2.7	2.6	2.7	2.7	2.5	2.4	2.4	2.5	2.6	2.7	2.8	2.8	2.8	2.7	2.7	2.7	2.6	2.7	2.8	2.9	2.9	2.9	2.7	2.6
2.3	2.3	2.3	2.3	2.4	2.5	2.6	2.7	2.9	3.3	2.9	2.7	2.8	2.6	2.5	2.5	2.2	2.2	2.3	2.4	2.6	2.6	2.6	2.6	2.6	2.7	3.1	3.2	3.3	3.4	3.4	3.3	3.4	2.9	2.7	2.5
3.5	3.4	3.3	3.3	3.3	3.4	3.3	3.3	3.3	3.2	3.1	3.0	3.0	2.8	3.4	2.9	2.8	2.7	3.0	3.2	3.4	3.5	3.5	3.7	3.6	3.6	3.8	4.0	3.8	3.7	4.2	4.6	4.2	4.3	4.0	4.6
3.5	3.2	3.2	2.9	3.0	3.5	3.7	4.1	4.1	3.8	3.7	3.6	3.3	3.4	3.4	3.3	3.1	3.1	3.5	4.1	4.1	4.2	4.1	4.2	4.0	3.9	3.8	3.9	3.7	3.7	3.8	4.1	3.5	3.7	3.5	3.3
3.4	3.4	3.4	3.3	3.3	3.7	3.8	3.9	4.1	4.0	3.9	3.6	3.5	3.4	3.5	3.4	3.4	3.6	3.6	4.1	4.3	4.1	3.9	4.1	4.0	3.8	4.3	4.2	4.9	4.6	3.7	3.7	3.6	3.6	3.4	3.4
3.2	3.4	3.4	3.2	3.2	3.3	3.6	3.6	3.8	3.5	3.5	3.4	3.4	3.4	3.4	3.4	3.5	3.7	3.6	3.7	4.1	4.0	4.5	3.7	3.8	4.9	4.8	4.1	4.3	4.1	3.8	3.5	3.3	3.6	3.5	3.4
3.4	3.4	3.5	3.2	3.2	3.3	3.3	3.4	3.5	3.5	3.4	3.4	3.4	3.4	3.4	3.3	3.8	4.1	3.5	4.1	4.5	3.8	3.9	3.7	3.4	3.4	4.0	3.5	3.7	3.5	3.4	3.3	3.2	3.7	3.4	3.5
3.4	3.3	3.4	3.3	3.3	3.4	3.3	3.3	3.4	3.3	3.5	3.4	3.3	3.3	3.3	3.3	3.4	3.9	3.5	4.3	4.5	4.1	3.6	3.4	3.4	3.1	2.7	3.4	3.4	3.4	3.4	3.4	3.3	3.5	3.4	3.5
3.5	3.3	3.3	3.3	3.3	3.3	3.2	3.2	3.3	3.2	3.4	3.5	3.4	3.4	3.3	3.3	3.1	3.4	3.2	3.4	3.4	3.3	3.4	3.3	3.4	3.4	3.4	3.5	3.4	3.3	3.4	3.4	3.2	3.4	3.4	3.2
3.5	3.3	3.3	3.3	3.3	3.3	3.2	3.2	3.2	3.1	3.4	3.6	3.6	3.4	3.3	3.3	3.1	3.4	3.2	3.5	3.6	3.5	3.3	3.3	3.4	3.4	3.3	3.4	3.3	3.4	3.3	3.3	3.3	3.3	3.5	3.3
3.6	3.4	3.3	3.4	3.4	3.4	3.3	3.3	3.2	3.2	3.8	4.6	3.8	3.5	3.3	3.3	3.2	3.3	3.2	3.4	3.8	3.7	3.4	3.3	3.3	3.3	3.2	3.2	3.2	3.3	3.3	3.3	3.2	3.2	3.4	3.2
3.8	3.8	3.8	3.7	3.8	3.7	3.5	3.6	3.6	3.6	3.7	5.3	4.0	3.5	3.6	3.4	3.5	3.5	3.5	3.4	4.1	3.8	3.6	3.5	3.5	3.5	3.5	3.5	3.8	3.8	3.6	3.7	3.9	4.0	3.8	3.5
3.5	3.6	3.6	3.5	3.7	3.7	3.7	4.0	3.9	3.8	4.2	4.8	4.0	3.6	3.6	3.5	3.8	3.8	3.5	3.7	3.7	3.9	3.8	3.4	3.5	3.4	3.3	3.4	3.5	3.3	3.6	3.4	3.1	3.4	3.4	3.5
3.3	3.3	3.2	3.2	3.4	3.6	3.8	3.9	3.8	3.7	3.9	4.1	4.2	4.1	4.1	4.3	4.2	4.2	4.0	4.0	4.1	4.1	4.0	4.0	4.0	4.0	3.9	3.8	3.7	3.6	3.5	3.3	3.3	3.2	3.1	3.2
3.9	3.4	3.6	3.6	3.3	3.6	3.9	3.9	3.8	3.8	3.7	3.8	4.0	4.0	4.3	4.4	4.3	4.1	4.0	3.8	3.8	3.9	4.1	4.0	4.1	4.2	4.2	4.2	4.0	3.6	3.6	3.9	3.8	3.4	3.3	3.6
4.5	4.5	4.4	4.3	4.2	4.4	4.7	4.7	4.6	4.6	4.6	4.7	4.3	4.4	4.6	4.5	4.1	3.8	3.8	3.9	4.1	4.3	5.1	5.7	5.0	4.1	5.0	5.8	6.0	5.6	6.0	6.4	5.3	4.5	4.5	4.6
4.6	4.7	4.9	5.1	5.5	5.7	5.4	5.1	4.8	4.7	4.3	3.7	3.6	3.5	3.5	3.8	4.0	4.2	4.6	4.9	5.6	5.1	4.0	3.1	4.2	4.4	3.5	3.0	3.2	3.3	2.9	2.8	3.3	3.7	4.0	4.2
4.6	4.7	4.9	4.4	4.1	3.8	3.6	3.0	2.6	3.3	4.0	4.3	4.6	4.6	4.6	4.1	3.5	3.0	2.7	2.4	2.1	2.0	2.2	2.3	2.3	2.4	2.2	2.0	1.8	1.6	1.8	2.1	2.5	3.2	4.5	4.5

Figure 30. ATOVS MEAN O-B brightness temperature differences (deg C). AUGUST 2001
Channel: HIRS11 (500 - 700 hPa)
NOAA15, using all observations



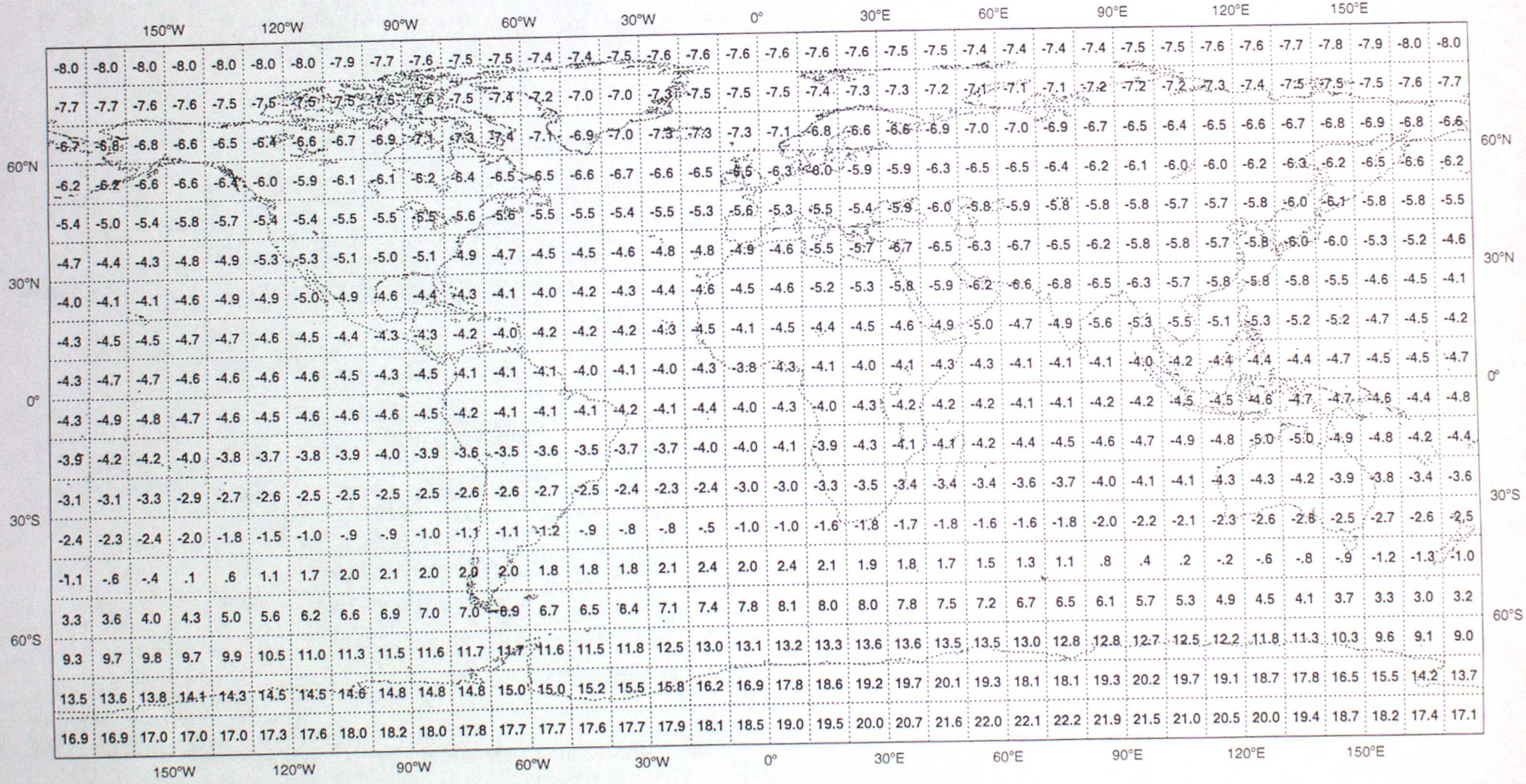
1.6	1.8	2.1	2.1	2.0	1.9	1.9	2.1	2.2	2.0	1.8	1.1	.9	.6	.1	-.2	.1	.3	.2	.0	.1	.2	.4	.4	.6	.8	.8	.9	1.3	1.7	1.9	1.8	1.8	2.0	1.9	1.7
.9	.7	.7	.5	.4	.4	.5	.7	.8	.4	.4	.1	.1	1.5	2.1	.1	-.1	-.1	-.4	-.6	-1.2	-.9	-.7	-.9	-1.1	-1.3	-1.6	-1.1	-.6	-.3	.2	.6	.9	1.3	1.3	1.2
-.5	-.7	-.5	-.1	-.3	-.2	-.7	-.9	-.9	-.6	.2	.5	-.4	1.0	.5	.2	.6	.0	-.2	-.1	-1.0	-.8	-.5	-.4	-.6	-.8	-1.1	-1.3	-1.3	-1.6	-1.2	-.5	.1	-.3	-.1	.3
-2.5	-2.4	-1.9	-1.3	-.9	-1.5	-2.4	-3.2	-2.8	-2.1	-1.5	-1.3	-1.9	-1.9	-2.0	-1.5	-1.5	-1.4	-2.1	-2.6	-3.2	-2.6	-2.1	-1.0	-.5	-1.2	-2.2	-2.7	-3.2	-2.6	-3.0	-2.4	-2.4	-3.0	-2.4	-2.3
-3.1	-2.9	-2.7	-2.5	-3.4	-5.9	-6.0	-5.5	-6.6	-6.1	-5.1	-4.4	-4.1	-3.8	-3.8	-4.3	-3.7	-5.1	-5.6	-6.3	-7.0	-7.6	-6.3	-5.5	-5.7	-4.6	-4.0	-5.1	-4.5	-4.7	-4.5	-4.4	-5.3	-4.5	-4.1	-3.5
-5.2	-5.5	-5.2	-6.7	-9.1	-12.0	-8.2	-4.8	-6.3	-6.1	-5.2	-4.1	-3.9	-5.7	-7.2	-8.7	-10.3	-8.7	-8.2	-12.1	-13.8	-15.5	-14.0	-12.5	-13.0	-8.4	-5.8	-5.4	-5.5	-4.6	-6.3	-6.8	-7.6	-6.4	-5.6	-5.5
-4.2	-5.2	-7.3	-9.7	-11.3	-11.4	-7.7	-5.4	-5.3	-4.8	-4.5	-5.2	-6.9	-8.6	-9.5	-9.7	-9.9	-9.4	-9.9	-12.0	-11.8	-10.6	-11.1	-13.2	-15.4	-13.3	-8.8	-5.7	-6.1	-6.5	-7.8	-8.0	-7.3	-5.6	-4.1	-4.2
-4.5	-6.8	-8.7	-8.8	-7.3	-6.1	-4.3	-3.3	-4.5	-4.8	-5.8	-5.6	-7.0	-7.6	-6.7	-5.5	-5.9	-6.1	-5.7	-5.4	-4.4	-3.9	-6.1	-6.4	-5.2	-3.8	-3.6	-4.0	-4.8	-4.6	-5.3	-5.2	-4.6	-4.4	-4.2	-4.0
-6.0	-6.2	-6.9	-8.1	-8.9	-8.9	-8.3	-7.9	-7.1	-7.1	-3.9	-4.8	-5.7	-5.0	-4.9	-5.7	-5.8	-5.2	-3.8	-3.2	-2.2	-4.6	-7.8	-6.2	-3.7	-3.4	-2.3	-1.5	-2.0	-3.0	-3.8	-4.0	-4.5	-4.7	-4.0	-5.2
-8.4	-10.7	-12.1	-13.1	-13.9	-14.8	-14.9	-14.9	-14.3	-12.6	-7.6	-8.2	-8.9	-10.4	-11.2	-11.3	-12.0	-11.0	-10.3	-8.5	-6.9	-10.2	-10.6	-7.6	-5.5	-4.2	-4.1	-4.6	-6.8	-7.5	-7.2	-6.6	-6.3	-5.7	-6.4	-7.3
-6.4	-8.1	-9.1	-10.0	-10.5	-11.5	-13.6	-15.4	-15.5	-14.3	-10.3	-9.1	-10.4	-10.3	-10.1	-10.8	-12.0	-13.1	-13.9	-12.4	-13.3	-15.2	-14.4	-12.4	-12.2	-11.8	-11.1	-10.6	-13.0	-14.8	-15.5	-15.1	-13.7	-11.8	-8.7	-6.8
-4.8	-5.3	-5.9	-5.7	-4.7	-4.9	-6.0	-7.6	-8.2	-9.6	-11.4	-7.5	-8.4	-7.9	-7.9	-7.1	-8.1	-9.7	-11.3	-12.2	-11.1	-11.8	-11.8	-10.4	-10.9	-11.2	-11.1	-12.1	-12.3	-12.5	-12.6	-12.3	-11.8	-11.8	-9.5	-7.1
-3.4	-3.2	-2.8	-2.2	-1.3	-1.0	-.4	-.8	-1.6	-1.7	-3.1	-4.3	-4.4	-4.0	-4.4	-3.4	-2.9	-4.2	-4.4	-4.9	-5.7	-5.8	-5.5	-5.1	-4.9	-4.7	-4.8	-5.4	-5.4	-5.2	-5.1	-4.5	-3.6	-3.6	-3.9	-3.4
-.4	-.1	-.4	-1.2	-1.3	-1.4	-1.1	-.6	-.2	.4	.9	-.5	-.8	-.6	-.6	-.2	.7	.9	1.0	1.0	.8	.3	.1	-.4	-.4	-.2	.1	.3	.5	.4	.2	.2	-.1	-1.0	-.8	-.1
1.2	1.6	1.3	.9	1.3	1.6	1.9	2.1	2.1	2.2	2.5	2.1	2.0	2.0	2.2	2.6	3.1	4.1	4.3	4.4	4.3	4.0	3.8	3.7	3.7	3.7	3.4	3.3	3.4	3.1	2.7	2.5	2.2	1.8	1.1	1.3
4.3	4.5	4.3	3.9	3.9	4.4	4.6	4.9	5.2	5.2	5.4	5.7	5.0	5.2	5.6	6.3	6.8	7.4	7.6	8.0	8.2	8.3	10.0	12.3	10.4	8.9	10.4	11.6	11.4	9.8	9.7	10.5	7.6	5.7	4.6	4.3
10.7	10.2	10.4	11.9	13.4	13.8	13.3	12.3	13.8	13.4	12.2	12.4	9.9	9.8	10.0	12.5	16.0	23.0	28.7	32.2	33.1	36.2	40.2	36.5	28.5	28.4	36.2	42.1	39.7	38.2	37.9	34.2	30.0	25.9	15.4	11.8
19.6	18.9	18.8	21.1	21.7	21.8	22.8	26.0	27.0	22.4	19.0	17.6	18.0	18.7	21.3	24.7	27.6	31.0	33.6	35.4	36.6	39.2	43.6	45.8	45.9	46.2	45.3	44.1	41.7	40.6	38.9	36.0	33.5	30.3	22.9	20.5

Figure 31. ATOVS SD O-B brightness temperature differences (deg C). AUGUST 2001
Channel: HIRS11 (500 - 700 hPa)
NOAA15, using all observations



2.5	2.3	2.2	2.3	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.7	2.7	3.0	3.2	3.3	3.2	3.0	2.9	3.0	3.1	3.0	2.9	2.9	2.8	2.7	2.6	2.6	2.6	2.5	2.6	2.8	2.8	2.6	2.5	2.5
2.4	2.4	2.4	2.7	2.9	2.7	2.6	2.7	2.7	2.7	2.6	2.9	3.2	2.6	2.5	2.7	2.7	2.7	2.7	2.9	3.2	3.1	2.9	3.0	2.9	2.9	2.9	2.9	2.7	2.8	3.0	3.5	3.4	2.9	2.6	2.5
3.5	3.3	3.4	3.0	3.2	3.2	3.0	3.0	3.0	3.2	3.0	3.1	3.6	3.0	3.0	2.8	2.7	2.9	3.0	3.0	3.5	3.2	3.1	3.0	3.0	3.0	3.3	3.5	3.2	3.4	3.2	4.0	4.0	3.9	3.7	3.6
4.0	3.4	3.4	3.3	3.5	4.1	3.8	3.8	3.8	3.6	3.7	3.3	3.5	3.4	3.2	3.2	3.4	3.3	3.4	3.5	3.7	3.3	3.2	3.3	3.1	3.3	3.4	3.3	3.3	3.4	3.3	3.6	3.8	4.1	3.6	3.8
3.9	3.6	3.4	3.4	3.9	4.7	3.8	3.8	4.3	4.7	4.4	4.4	4.1	3.7	3.7	4.0	4.0	4.3	4.2	4.5	5.1	5.1	4.4	4.3	4.2	3.8	3.6	4.0	4.1	3.7	3.7	4.2	4.8	4.3	4.0	4.3
4.1	3.7	3.5	3.7	3.6	4.2	4.9	3.6	4.2	4.8	4.4	3.7	3.6	3.8	3.9	4.5	4.5	4.7	4.9	5.0	4.8	4.6	4.2	4.7	4.6	4.0	3.1	3.3	3.4	3.2	3.9	3.8	4.0	4.2	4.4	4.4
3.6	3.7	3.7	3.2	3.8	3.9	3.7	3.3	3.7	3.2	3.0	3.4	3.6	3.6	3.7	3.8	4.1	3.8	4.5	4.4	4.2	4.4	4.3	4.8	4.7	3.5	3.8	2.1	2.5	3.2	3.5	3.2	3.2	3.8	3.4	3.4
3.3	3.8	3.6	4.2	4.4	4.0	2.8	2.4	3.0	3.1	2.9	3.1	3.6	3.9	3.6	3.6	3.8	3.5	3.2	3.8	3.1	2.9	3.3	3.1	2.8	2.0	1.9	2.6	2.8	2.6	2.4	2.4	2.6	2.9	2.9	3.2
3.8	3.6	3.8	4.3	4.3	3.9	3.9	3.8	3.9	3.8	2.8	3.1	3.0	3.1	3.4	3.7	3.5	3.4	2.8	2.7	2.6	3.6	2.9	3.0	2.8	2.6	2.3	2.0	2.1	2.6	3.0	3.0	3.2	3.6	3.0	3.8
3.8	3.7	3.1	3.0	2.7	2.7	2.3	2.6	3.2	2.9	3.3	3.2	2.9	2.9	2.5	2.4	2.2	2.8	2.9	3.7	3.9	4.1	3.5	4.6	4.5	3.7	3.3	3.6	4.1	4.0	4.2	3.7	3.5	3.3	4.0	3.9
4.3	4.3	3.7	3.6	4.1	4.1	3.4	2.8	2.8	3.4	4.6	5.1	4.8	5.0	4.0	3.5	2.7	3.0	3.4	4.2	4.0	3.0	3.4	4.2	4.2	4.2	3.9	3.5	3.0	2.6	3.0	3.6	4.2	5.1	5.4	5.2
5.6	5.6	5.0	4.7	4.8	5.1	5.0	4.8	4.8	4.9	5.4	5.3	5.4	5.6	4.5	4.3	3.9	3.1	3.2	3.6	4.7	4.6	5.0	4.9	3.7	3.4	3.6	3.1	3.3	3.5	3.3	3.8	4.2	4.7	5.0	5.1
4.0	4.6	4.9	4.2	3.7	3.8	3.7	3.8	3.8	4.0	4.7	5.0	4.6	4.6	4.5	3.9	3.9	4.4	4.3	4.4	5.0	5.2	4.5	4.9	4.8	4.2	4.5	4.7	4.2	4.1	4.4	4.5	4.2	4.4	4.5	4.1
3.8	3.7	3.5	3.8	3.7	3.5	3.6	3.7	3.6	3.6	3.9	3.9	4.0	3.8	3.9	3.8	3.6	3.7	3.7	3.5	3.7	3.9	3.8	3.8	4.0	3.8	3.9	3.6	3.5	3.4	3.4	3.4	3.5	3.8	3.9	3.5
3.7	3.4	3.6	3.4	3.4	3.6	3.4	3.3	3.2	3.2	3.3	3.4	3.3	3.3	3.2	3.3	3.7	3.2	3.2	3.0	3.0	3.0	3.0	3.0	2.9	3.0	3.0	2.9	3.1	3.1	3.2	3.0	3.1	3.2	3.6	3.6
3.4	3.6	3.5	3.3	3.3	3.3	3.3	3.1	3.1	3.1	3.1	3.7	3.1	3.0	3.0	3.0	2.9	2.6	2.5	2.6	2.6	3.0	5.4	7.4	5.5	3.1	5.7	7.4	7.7	6.3	7.1	8.2	5.7	3.9	3.6	3.5
4.0	4.2	5.1	6.6	7.6	8.3	7.5	6.5	6.3	6.0	4.8	4.1	3.1	3.1	3.3	5.1	6.6	8.6	10.1	11.4	12.7	12.4	10.5	7.1	8.9	9.2	8.5	8.3	8.0	8.8	7.5	6.0	6.4	6.6	5.7	3.9
8.2	8.2	8.2	7.1	6.4	6.1	6.1	5.3	4.8	5.0	6.0	6.7	7.3	7.5	7.7	6.9	6.3	5.8	5.6	5.1	4.1	4.4	5.7	6.2	6.1	6.5	5.9	5.0	4.0	3.4	3.5	3.9	4.6	5.8	9.0	8.6

Figure 32. ATOVS MEAN O-B brightness temperature differences (deg C). AUGUST 2001
Channel: HIRS4 (400 hPa)
NOAA15, using all observations



-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-7.9	-7.7	-7.6	-7.5	-7.5	-7.4	-7.4	-7.5	-7.6	-7.6	-7.6	-7.6	-7.6	-7.6	-7.5	-7.5	-7.4	-7.4	-7.4	-7.4	-7.5	-7.5	-7.6	-7.6	-7.7	-7.8	-7.9	-8.0	-8.0
-7.7	-7.7	-7.6	-7.6	-7.5	-7.5	-7.5	-7.5	-7.5	-7.6	-7.5	-7.4	-7.2	-7.0	-7.0	-7.3	-7.5	-7.5	-7.5	-7.4	-7.3	-7.3	-7.2	-7.1	-7.1	-7.1	-7.2	-7.2	-7.2	-7.3	-7.4	-7.5	-7.5	-7.5	-7.6	-7.7
-6.7	-6.8	-6.8	-6.6	-6.5	-6.4	-6.6	-6.7	-6.9	-7.1	-7.3	-7.4	-7.1	-6.9	-7.0	-7.3	-7.3	-7.3	-7.1	-6.8	-6.6	-6.6	-6.9	-7.0	-7.0	-6.9	-6.7	-6.5	-6.4	-6.5	-6.6	-6.7	-6.8	-6.9	-6.8	-6.6
-6.2	-6.2	-6.6	-6.6	-6.4	-6.0	-5.9	-6.1	-6.1	-6.2	-6.4	-6.5	-6.5	-6.6	-6.7	-6.6	-6.5	-6.5	-6.3	-6.0	-5.9	-5.9	-6.3	-6.5	-6.5	-6.4	-6.2	-6.1	-6.0	-6.0	-6.2	-6.3	-6.2	-6.5	-6.6	-6.2
-5.4	-5.0	-5.4	-5.8	-5.7	-5.4	-5.4	-5.5	-5.5	-5.5	-5.6	-5.6	-5.5	-5.5	-5.4	-5.5	-5.3	-5.6	-5.3	-5.5	-5.4	-5.9	-6.0	-5.8	-5.9	-5.8	-5.8	-5.8	-5.7	-5.7	-5.8	-6.0	-6.1	-5.8	-5.8	-5.5
-4.7	-4.4	-4.3	-4.8	-4.9	-5.3	-5.3	-5.1	-5.0	-5.1	-4.9	-4.7	-4.5	-4.5	-4.6	-4.8	-4.8	-4.9	-4.6	-5.5	-5.7	-6.7	-6.5	-6.3	-6.7	-6.5	-6.2	-5.8	-5.8	-5.7	-5.8	-6.0	-6.0	-5.3	-5.2	-4.6
-4.0	-4.1	-4.1	-4.6	-4.9	-4.9	-5.0	-4.9	-4.6	-4.4	-4.3	-4.1	-4.0	-4.2	-4.3	-4.4	-4.6	-4.5	-4.6	-5.2	-5.3	-5.8	-5.9	-6.2	-6.6	-6.8	-6.5	-6.3	-5.7	-5.8	-5.8	-5.8	-5.5	-4.6	-4.5	-4.1
-4.3	-4.5	-4.5	-4.7	-4.7	-4.6	-4.5	-4.4	-4.3	-4.3	-4.2	-4.0	-4.2	-4.2	-4.2	-4.3	-4.5	-4.1	-4.5	-4.4	-4.5	-4.6	-4.9	-5.0	-4.7	-4.9	-5.6	-5.3	-5.5	-5.1	-5.3	-5.2	-5.2	-4.7	-4.5	-4.2
-4.3	-4.7	-4.7	-4.6	-4.6	-4.6	-4.6	-4.5	-4.3	-4.5	-4.1	-4.1	-4.1	-4.0	-4.1	-4.0	-4.3	-3.8	-4.3	-4.1	-4.0	-4.1	-4.3	-4.3	-4.1	-4.1	-4.1	-4.0	-4.2	-4.4	-4.4	-4.4	-4.7	-4.5	-4.5	-4.7
-4.3	-4.9	-4.8	-4.7	-4.6	-4.5	-4.6	-4.6	-4.6	-4.5	-4.2	-4.1	-4.1	-4.1	-4.2	-4.1	-4.4	-4.0	-4.3	-4.0	-4.3	-4.2	-4.2	-4.2	-4.1	-4.1	-4.2	-4.2	-4.5	-4.5	-4.6	-4.7	-4.7	-4.6	-4.4	-4.8
-3.9	-4.2	-4.2	-4.0	-3.8	-3.7	-3.8	-3.9	-4.0	-3.9	-3.6	-3.5	-3.6	-3.5	-3.7	-3.7	-4.0	-4.0	-4.1	-3.9	-4.3	-4.1	-4.1	-4.2	-4.4	-4.5	-4.6	-4.7	-4.9	-4.8	-5.0	-5.0	-4.9	-4.8	-4.2	-4.4
-3.1	-3.1	-3.3	-2.9	-2.7	-2.6	-2.5	-2.5	-2.5	-2.5	-2.6	-2.6	-2.7	-2.5	-2.4	-2.3	-2.4	-3.0	-3.0	-3.3	-3.5	-3.4	-3.4	-3.4	-3.6	-3.7	-4.0	-4.1	-4.1	-4.3	-4.3	-4.2	-3.9	-3.8	-3.4	-3.6
-2.4	-2.3	-2.4	-2.0	-1.8	-1.5	-1.0	-.9	-.9	-1.0	-1.1	-1.1	-1.2	-.9	-.8	-.8	-.5	-1.0	-1.0	-1.6	-1.8	-1.7	-1.8	-1.6	-1.6	-1.8	-2.0	-2.2	-2.1	-2.3	-2.6	-2.8	-2.5	-2.7	-2.6	-2.5
-1.1	-.6	-.4	.1	.6	1.1	1.7	2.0	2.1	2.0	2.0	2.0	1.8	1.8	1.8	2.1	2.4	2.0	2.4	2.1	1.9	1.8	1.7	1.5	1.3	1.1	.8	.4	.2	-.2	-.6	-.8	-.9	-1.2	-1.3	-1.0
3.3	3.6	4.0	4.3	5.0	5.6	6.2	6.6	6.9	7.0	7.0	6.9	6.7	6.5	6.4	7.1	7.4	7.8	8.1	8.0	8.0	7.8	7.5	7.2	6.7	6.5	6.1	5.7	5.3	4.9	4.5	4.1	3.7	3.3	3.0	3.2
9.3	9.7	9.8	9.7	9.9	10.5	11.0	11.3	11.5	11.6	11.7	11.7	11.6	11.5	11.8	12.5	13.0	13.1	13.2	13.3	13.6	13.6	13.5	13.5	13.0	12.8	12.8	12.7	12.5	12.2	11.8	11.3	10.3	9.6	9.1	9.0
13.5	13.6	13.8	14.1	14.3	14.5	14.5	14.6	14.8	14.8	14.8	15.0	15.0	15.2	15.5	15.8	16.2	16.9	17.8	18.6	19.2	19.7	20.1	19.3	18.1	18.1	19.3	20.2	19.7	19.1	18.7	17.8	16.5	15.5	14.2	13.7
16.9	16.9	17.0	17.0	17.0	17.3	17.6	18.0	18.2	18.0	17.8	17.7	17.7	17.6	17.7	17.9	18.1	18.5	19.0	19.5	20.0	20.7	21.6	22.0	22.1	22.2	21.9	21.5	21.0	20.5	20.0	19.4	18.7	18.2	17.4	17.1

Figure 33. ATOVS SD O-B brightness temperature differences (deg C). AUGUST 2001
Channel: HIRS4 (400 hPa)
NOAA15, using all observations

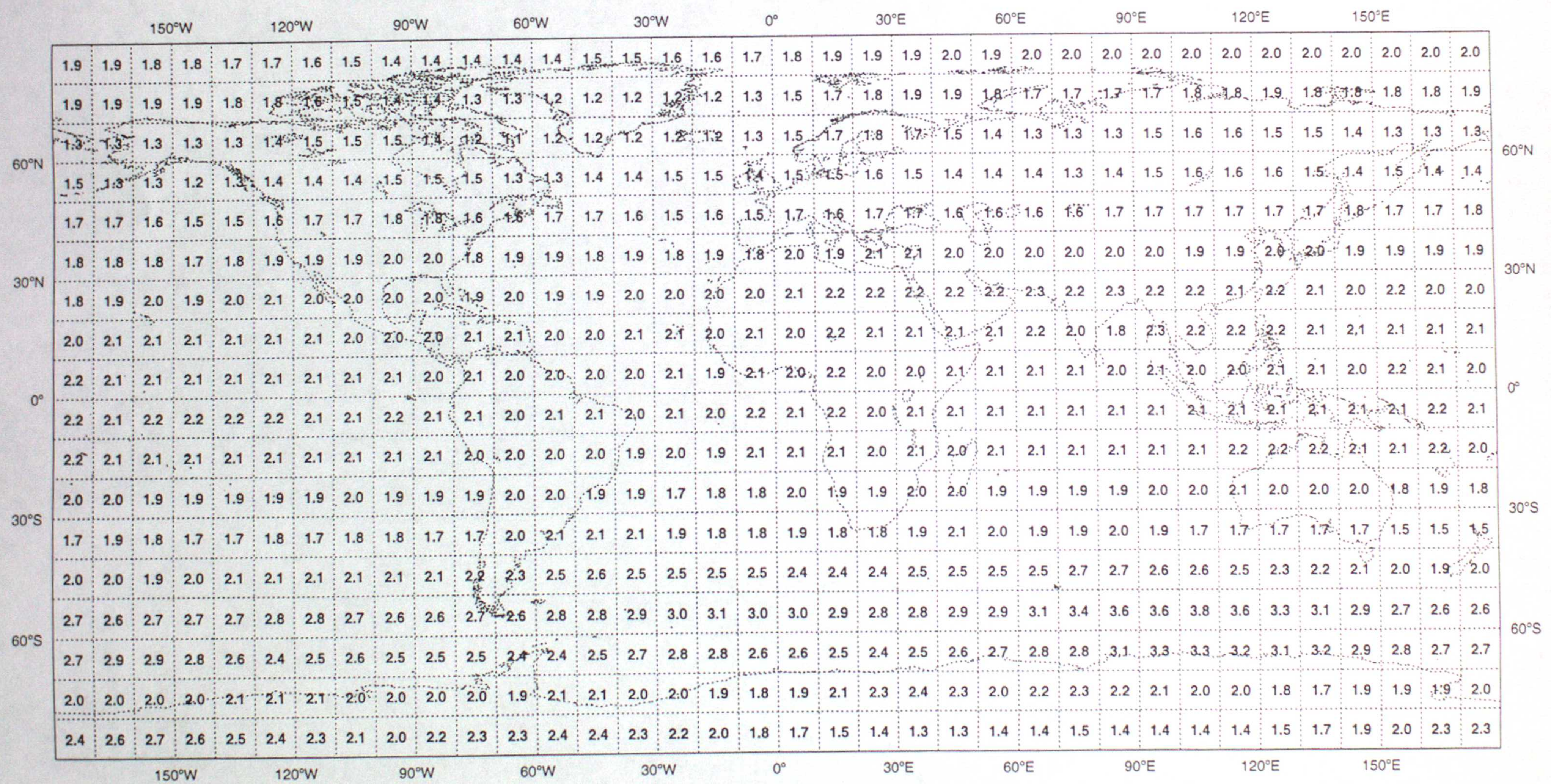
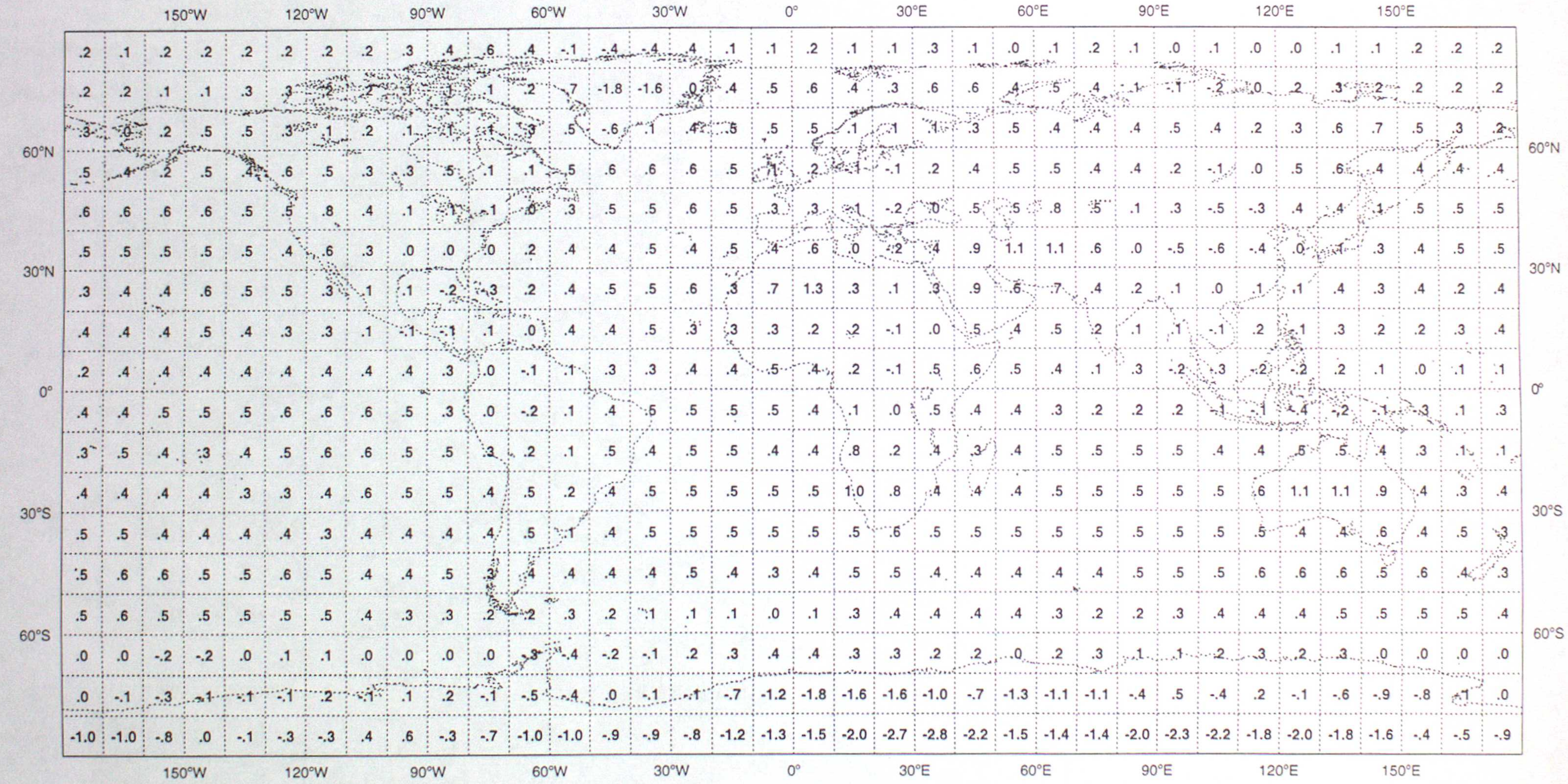
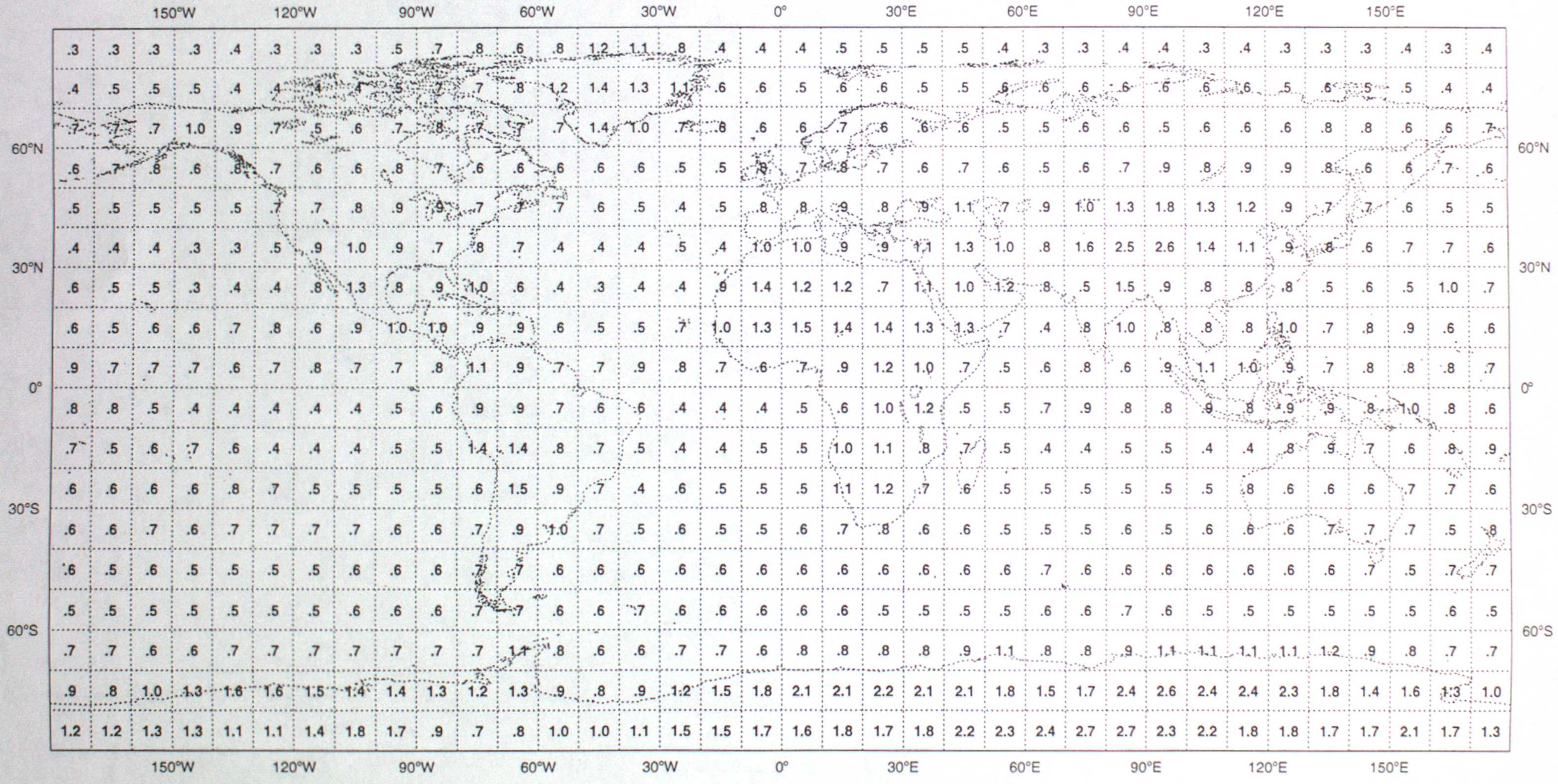

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
1.9 1.9 1.8 1.8 1.7 1.7 1.6 1.5 1.4 1.4 1.4 1.4 1.4 1.5 1.5 1.6 1.6 1.7 1.8 1.9 1.9 1.9 2.0 1.9 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0
1.9 1.9 1.9 1.9 1.8 1.8 1.6 1.5 1.4 1.4 1.3 1.3 1.2 1.2 1.2 1.2 1.2 1.3 1.5 1.7 1.8 1.9 1.9 1.8 1.7 1.7 1.7 1.7 1.8 1.8 1.9 1.8 1.8 1.8 1.8 1.9
1.3 1.3 1.3 1.3 1.3 1.4 1.5 1.5 1.5 1.4 1.2 1.1 1.2 1.2 1.2 1.2 1.2 1.3 1.5 1.7 1.8 1.7 1.5 1.4 1.3 1.3 1.3 1.5 1.6 1.6 1.5 1.5 1.4 1.3 1.3 1.3
1.5 1.3 1.3 1.2 1.3 1.4 1.4 1.4 1.5 1.5 1.5 1.3 1.3 1.4 1.4 1.5 1.5 1.4 1.5 1.5 1.6 1.5 1.4 1.4 1.4 1.3 1.4 1.5 1.6 1.6 1.6 1.5 1.4 1.5 1.4 1.4
1.7 1.7 1.6 1.5 1.5 1.6 1.7 1.7 1.8 1.8 1.6 1.6 1.7 1.7 1.6 1.5 1.6 1.5 1.7 1.6 1.7 1.7 1.6 1.6 1.6 1.6 1.7 1.7 1.7 1.7 1.7 1.7 1.8 1.7 1.7 1.8
1.8 1.8 1.8 1.7 1.8 1.9 1.9 1.9 2.0 2.0 1.8 1.9 1.9 1.8 1.9 1.8 1.9 1.8 2.0 1.9 2.1 2.1 2.0 2.0 2.0 2.0 2.0 2.0 1.9 1.9 2.0 2.0 1.9 1.9 1.9 1.9
1.8 1.9 2.0 1.9 2.0 2.1 2.0 2.0 2.0 2.0 1.9 2.0 1.9 1.9 2.0 2.0 2.0 2.0 2.1 2.2 2.2 2.2 2.2 2.2 2.3 2.2 2.3 2.2 2.2 2.1 2.2 2.1 2.0 2.2 2.0 2.0
2.0 2.1 2.1 2.1 2.1 2.1 2.1 2.0 2.0 2.0 2.1 2.1 2.0 2.0 2.1 2.1 2.0 2.1 2.0 2.2 2.1 2.1 2.1 2.1 2.2 2.0 1.8 2.3 2.2 2.2 2.2 2.1 2.1 2.1 2.1 2.1
2.2 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.0 2.1 2.0 2.0 2.0 2.0 2.1 1.9 2.1 2.0 2.2 2.0 2.0 2.1 2.1 2.1 2.1 2.0 2.1 2.0 2.0 2.1 2.1 2.0 2.2 2.1 2.0
2.2 2.1 2.2 2.2 2.2 2.2 2.1 2.1 2.2 2.1 2.1 2.0 2.1 2.1 2.0 2.1 2.0 2.2 2.1 2.2 2.0 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.2 2.1
2.2 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.0 2.0 2.0 2.0 1.9 2.0 1.9 2.1 2.1 2.1 2.0 2.1 2.0 2.1 2.1 2.1 2.1 2.1 2.1 2.2 2.2 2.2 2.1 2.1 2.2 2.0
2.0 2.0 1.9 1.9 1.9 1.9 1.9 2.0 1.9 1.9 1.9 2.0 2.0 1.9 1.9 1.7 1.8 1.8 2.0 1.9 1.9 2.0 2.0 1.9 1.9 1.9 1.9 2.0 2.0 2.1 2.0 2.0 2.0 1.8 1.9 1.8
1.7 1.9 1.8 1.7 1.7 1.8 1.7 1.8 1.8 1.7 1.7 2.0 2.1 2.1 2.1 1.9 1.8 1.8 1.9 1.8 1.8 1.9 2.1 2.0 1.9 1.9 2.0 1.9 1.7 1.7 1.7 1.7 1.7 1.5 1.5 1.5
2.0 2.0 1.9 2.0 2.1 2.1 2.1 2.1 2.1 2.1 2.2 2.3 2.5 2.6 2.5 2.5 2.5 2.5 2.4 2.4 2.4 2.5 2.5 2.5 2.5 2.7 2.7 2.6 2.6 2.5 2.3 2.2 2.1 2.0 1.9 2.0
2.7 2.6 2.7 2.7 2.7 2.8 2.8 2.7 2.6 2.6 2.7 2.6 2.8 2.8 2.9 3.0 3.1 3.0 3.0 2.9 2.8 2.8 2.9 2.9 3.1 3.4 3.6 3.6 3.8 3.6 3.3 3.1 2.9 2.7 2.6 2.6
2.7 2.9 2.9 2.8 2.6 2.4 2.5 2.6 2.5 2.5 2.5 2.4 2.4 2.5 2.7 2.8 2.8 2.6 2.6 2.5 2.4 2.5 2.6 2.7 2.8 2.8 3.1 3.3 3.3 3.2 3.1 3.2 2.9 2.8 2.7 2.7
2.0 2.0 2.0 2.0 2.1 2.1 2.1 2.0 2.0 2.0 2.0 1.9 2.1 2.1 2.0 2.0 1.9 1.8 1.9 2.1 2.3 2.4 2.3 2.0 2.2 2.3 2.2 2.1 2.0 2.0 1.8 1.7 1.9 1.9 1.9 2.0
2.4 2.6 2.7 2.6 2.5 2.4 2.3 2.1 2.0 2.2 2.3 2.3 2.4 2.4 2.3 2.2 2.0 1.8 1.7 1.5 1.4 1.3 1.3 1.4 1.4 1.5 1.4 1.4 1.4 1.4 1.5 1.7 1.9 2.0 2.3 2.3
150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

Figure 34. ATOVS MEAN O-B brightness temperature differences (deg C). AUGUST 2001
Channel: AMSUA-5 (700 hPa)
NOAA15, using all observations



.2	.1	.2	.2	.2	.2	.2	.2	.3	.4	.6	.4	-.1	-.4	-.4	.4	.1	.1	.2	.1	.1	.3	.1	.0	.1	.2	.1	.0	.1	.0	.0	.1	.1	.2	.2	.2
.2	.2	.1	.1	.3	.3	.2	.2	.1	.1	.1	.2	.7	-1.8	-1.6	.0	.4	.5	.6	.4	.3	.6	.6	.4	.5	.4	-.1	-.1	-.2	.0	.2	.3	.2	.2	.2	.2
.3	.0	.2	.5	.5	.3	.1	.2	.1	.1	.1	.3	.5	-.6	.1	.4	.5	.5	.5	.1	.1	.1	.3	.5	.4	.4	.4	.5	.4	.2	.3	.6	.7	.5	.3	.2
.5	.4	.2	.5	.4	.6	.5	.3	.3	.5	.1	.1	.5	.6	.6	.6	.5	.1	.2	-.1	-.1	.2	.4	.5	.5	.5	.4	.4	.2	-.1	.0	.5	.6	.4	.4	.4
.6	.6	.6	.6	.5	.5	.8	.4	.1	-.1	-.1	.0	.3	.5	.5	.6	.5	.3	.3	-.1	-.2	.0	.5	.5	.8	.5	.1	.3	-.5	-.3	.4	.4	.1	.5	.5	.5
.5	.5	.5	.5	.5	.4	.6	.3	.0	.0	.0	.2	.4	.4	.5	.4	.5	.4	.6	.0	.2	.4	.9	1.1	1.1	.6	.0	-.5	-.6	-.4	.0	.1	.3	.4	.5	.5
.3	.4	.4	.6	.5	.5	.3	.1	.1	-.2	-.3	.2	.4	.5	.5	.6	.3	.7	1.3	.3	.1	.3	.9	.6	.7	.4	.2	.1	.0	.1	.1	.4	.3	.4	.2	.4
.4	.4	.4	.5	.4	.3	.3	.1	-.1	-.1	.1	.0	.4	.4	.5	.3	.3	.3	.2	.2	-.1	.0	.5	.4	.5	.2	.1	.1	-.1	.2	-.1	.3	.2	.2	.3	.4
.2	.4	.4	.4	.4	.4	.4	.4	.4	.3	.0	-.1	.1	.3	.3	.4	.4	.5	.4	.2	-.1	.5	.6	.5	.4	.1	.3	-.2	-.3	-.2	-.2	.2	.1	.0	.1	.1
.4	.4	.5	.5	.5	.6	.6	.6	.5	.3	.0	-.2	.1	.4	.5	.5	.5	.5	.4	.1	.0	.5	.4	.4	.3	.2	.2	.2	-.1	-.1	-.4	-.2	-.1	-.3	.1	.3
.3	.5	.4	.3	.4	.5	.6	.6	.5	.5	.3	.2	.1	.5	.4	.5	.5	.4	.4	.8	.2	.4	.3	.4	.5	.5	.5	.5	.4	.4	.5	.5	.4	.3	.1	.1
.4	.4	.4	.4	.3	.3	.4	.6	.5	.5	.4	.5	.2	.4	.5	.5	.5	.5	.5	1.0	.8	.4	.4	.4	.5	.5	.5	.5	.5	.6	1.1	1.1	.9	.4	.3	.4
.5	.5	.4	.4	.4	.4	.3	.4	.4	.4	.4	.5	.1	.4	.5	.5	.5	.5	.5	.5	.6	.5	.5	.5	.5	.5	.5	.5	.5	.5	.4	.4	.6	.4	.5	.3
.5	.6	.6	.5	.5	.6	.5	.4	.4	.5	.3	.4	.4	.4	.4	.5	.4	.3	.4	.5	.5	.4	.4	.4	.4	.4	.5	.5	.5	.6	.6	.6	.5	.6	.4	.3
.5	.6	.5	.5	.5	.5	.5	.4	.3	.3	.2	.2	.3	.2	.1	.1	.1	.0	.1	.3	.4	.4	.4	.4	.3	.2	.2	.3	.4	.4	.4	.5	.5	.5	.5	.4
.0	.0	-.2	-.2	.0	.1	.1	.0	.0	.0	.0	-.3	-.4	-.2	-.1	.2	.3	.4	.4	.3	.3	.2	.2	.0	.2	.3	.1	.1	.2	.3	.2	.3	.0	.0	.0	.0
.0	-.1	-.3	.1	-.1	-.1	.2	-.1	.1	.2	-.1	-.5	-.4	.0	-.1	-.1	-.7	-1.2	-1.8	-1.6	-1.6	-1.0	-.7	-1.3	-1.1	-1.1	-.4	.5	-.4	.2	-.1	-.6	-.9	-.8	.1	.0
-1.0	-1.0	-.8	.0	-.1	-.3	-.3	.4	.6	-.3	-.7	-1.0	-1.0	-.9	-.9	-.8	-1.2	-1.3	-1.5	-2.0	-2.7	-2.8	-2.2	-1.5	-1.4	-1.4	-2.0	-2.3	-2.2	-1.8	-2.0	-1.8	-1.6	-.4	-.5	-.9

Figure 35. ATOVS SD O-B brightness temperature differences (deg C). AUGUST 2001
Channel: AMSUA-5 (700 hPa)
NOAA15, using all observations



.3	.3	.3	.3	.4	.3	.3	.3	.5	.7	.8	.6	.8	1.2	1.1	.8	.4	.4	.4	.5	.5	.5	.5	.4	.3	.3	.4	.4	.3	.4	.3	.3	.3	.4	.3	.4
.4	.5	.5	.5	.4	.4	.4	.4	.5	.7	.7	.8	1.2	1.4	1.3	1.1	.6	.6	.5	.6	.6	.5	.5	.6	.6	.6	.6	.6	.6	.6	.5	.6	.5	.5	.4	.4
.7	.7	.7	1.0	.9	.7	.5	.6	.7	.8	.7	.7	.7	1.4	1.0	.7	.6	.6	.6	.7	.6	.6	.6	.5	.5	.6	.6	.5	.6	.6	.6	.8	.8	.6	.6	.7
.6	.7	.8	.6	.8	.7	.6	.6	.8	.7	.6	.6	.6	.6	.6	.5	.5	.8	.7	.8	.7	.6	.7	.6	.5	.6	.7	.9	.8	.9	.9	.8	.6	.6	.7	.6
.5	.5	.5	.5	.5	.7	.7	.8	.9	.9	.7	.7	.7	.6	.5	.4	.5	.8	.8	.9	.8	.9	1.1	.7	.9	1.0	1.3	1.8	1.3	1.2	.9	.7	.7	.6	.5	.5
.4	.4	.4	.3	.3	.5	.9	1.0	.9	.7	.8	.7	.4	.4	.4	.5	.4	1.0	1.0	.9	.9	1.1	1.3	1.0	.8	1.6	2.5	2.6	1.4	1.1	.9	.8	.6	.7	.7	.6
.6	.5	.5	.3	.4	.4	.8	1.3	.8	.9	1.0	.6	.4	.3	.4	.4	.9	1.4	1.2	1.2	.7	1.1	1.0	1.2	.8	.5	1.5	.9	.8	.8	.8	.5	.6	.5	1.0	.7
.6	.5	.6	.6	.7	.8	.6	.9	1.0	1.0	.9	.9	.6	.5	.5	.7	1.0	1.3	1.5	1.4	1.4	1.3	1.3	.7	.4	.8	1.0	.8	.8	.8	1.0	.7	.8	.9	.6	.6
.9	.7	.7	.7	.6	.7	.8	.7	.7	.8	1.1	.9	.7	.7	.9	.8	.7	.6	.7	.9	1.2	1.0	.7	.5	.6	.8	.6	.9	1.1	1.0	.9	.7	.8	.8	.8	.7
.8	.8	.5	.4	.4	.4	.4	.4	.5	.6	.9	.9	.7	.6	.6	.4	.4	.4	.5	.6	1.0	1.2	.5	.5	.7	.9	.8	.8	.9	.8	.9	.9	.8	1.0	.8	.6
.7	.5	.6	.7	.6	.4	.4	.4	.5	.5	1.4	1.4	.8	.7	.5	.4	.4	.5	.5	1.0	1.1	.8	.7	.5	.4	.4	.5	.5	.4	.4	.8	.9	.7	.6	.8	.9
.6	.6	.6	.6	.8	.7	.5	.5	.5	.5	.6	1.5	.9	.7	.4	.6	.5	.5	.5	1.1	1.2	.7	.6	.5	.5	.5	.5	.5	.5	.8	.6	.6	.6	.7	.7	.6
.6	.6	.7	.6	.7	.7	.7	.7	.6	.6	.7	.9	1.0	.7	.5	.6	.5	.5	.6	.7	.8	.6	.6	.5	.5	.5	.6	.5	.6	.6	.6	.7	.7	.7	.5	.8
.6	.5	.6	.5	.5	.5	.5	.6	.6	.6	.7	.7	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.7	.6	.6	.6	.6	.6	.6	.6	.7	.5	.7	.7
.5	.5	.5	.5	.5	.5	.5	.6	.6	.6	.7	.7	.6	.6	.7	.6	.6	.6	.6	.6	.5	.5	.5	.5	.6	.6	.7	.6	.5	.5	.5	.5	.5	.5	.6	.5
.7	.7	.6	.6	.7	.7	.7	.7	.7	.7	.7	1.1	.8	.6	.6	.7	.7	.6	.8	.8	.8	.8	.9	1.1	.8	.8	.9	1.1	1.1	1.1	1.1	1.2	.9	.8	.7	.7
.9	.8	1.0	1.3	1.6	1.6	1.5	1.4	1.4	1.3	1.2	1.3	.9	.8	.9	1.2	1.5	1.8	2.1	2.1	2.2	2.1	2.1	1.8	1.5	1.7	2.4	2.6	2.4	2.4	2.3	1.8	1.4	1.6	1.3	1.0
1.2	1.2	1.3	1.3	1.1	1.1	1.4	1.8	1.7	.9	.7	.8	1.0	1.0	1.1	1.5	1.5	1.7	1.6	1.8	1.7	1.8	2.2	2.3	2.4	2.7	2.7	2.3	2.2	1.8	1.8	1.7	1.7	2.1	1.7	1.3

Figure 36. ATOVS MEAN O-B brightness temperature differences (deg C). AUGUST 2001
Channel: AMSUA-7 (300 hPa)
NOAA15, using all observations

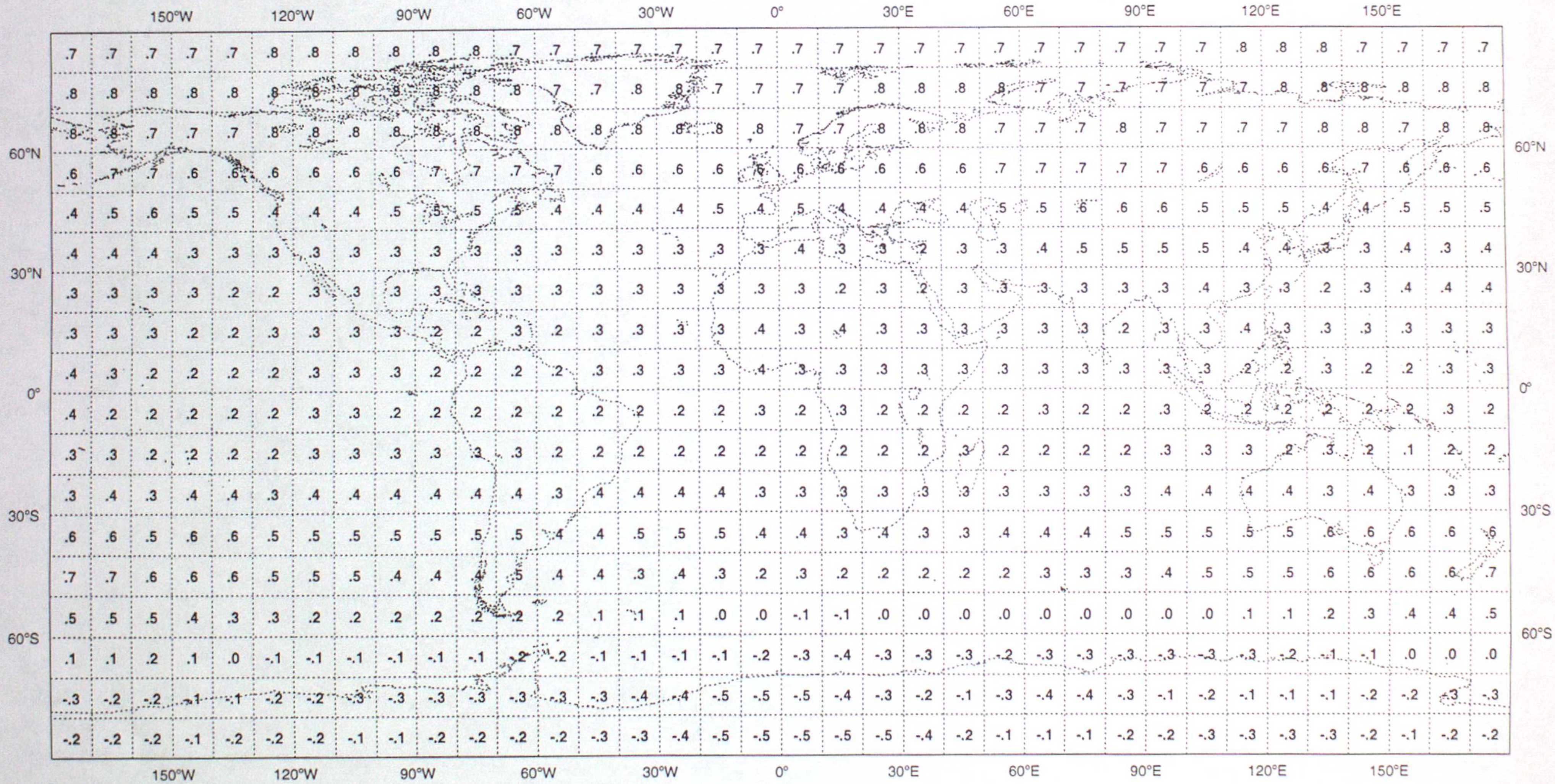

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N
30°N
0°
30°S
60°S
.7 .7 .7 .7 .7 .8 .8 .8 .8 .8 .8 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .8 .8 .8 .7 .7 .7 .7
.8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .7 .7 .8 .8 .7 .7 .7 .7 .8 .8 .8 .8 .7 .7 .7 .7 .7 .7 .8 .8 .8 .8 .8 .8
.8 .8 .7 .7 .7 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .8 .7 .7 .8 .8 .8 .7 .7 .7 .8 .7 .7 .7 .7 .8 .8 .7 .8 .8
.6 .7 .7 .6 .6 .6 .6 .6 .6 .7 .7 .7 .7 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .7 .7 .7 .7 .7 .6 .6 .6 .6 .7 .6 .6 .6
.4 .5 .6 .5 .5 .4 .4 .4 .5 .5 .5 .5 .4 .4 .4 .4 .5 .4 .5 .4 .4 .4 .4 .5 .5 .6 .6 .6 .5 .5 .5 .4 .4 .5 .5 .5
.4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .3 .3 .2 .3 .3 .4 .5 .5 .5 .5 .4 .4 .3 .3 .4 .3 .4
.3 .3 .3 .3 .2 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .2 .3 .2 .3 .3 .3 .3 .3 .3 .4 .3 .3 .2 .3 .4 .4 .4
.3 .3 .3 .2 .2 .3 .3 .3 .3 .2 .2 .3 .2 .3 .3 .3 .3 .4 .3 .4 .3 .3 .3 .3 .3 .3 .2 .3 .3 .4 .3 .3 .3 .3 .3 .3
.4 .3 .2 .2 .2 .2 .3 .3 .3 .2 .2 .2 .2 .3 .3 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .2 .2 .3 .2 .2 .3 .3
.4 .2 .2 .2 .2 .2 .3 .3 .2 .2 .2 .2 .2 .2 .2 .2 .2 .3 .2 .3 .2 .2 .2 .2 .3 .2 .2 .3 .2 .2 .2 .2 .2 .2 .3 .2
.3 .3 .2 .2 .2 .2 .3 .3 .3 .3 .3 .3 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .3 .2 .2 .2 .2 .3 .3 .3 .2 .3 .2 .1 .2 .2
.3 .4 .3 .4 .4 .3 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .4 .4 .3 .4 .3 .3 .3
.6 .6 .5 .6 .6 .5 .5 .5 .5 .5 .5 .5 .4 .4 .5 .5 .5 .4 .4 .3 .4 .3 .3 .4 .4 .4 .5 .5 .5 .5 .5 .6 .6 .6 .6 .6
.7 .7 .6 .6 .6 .5 .5 .5 .4 .4 .4 .5 .4 .4 .3 .4 .3 .2 .3 .2 .2 .2 .2 .2 .3 .3 .3 .4 .5 .5 .5 .6 .6 .6 .6 .7
.5 .5 .5 .4 .3 .3 .2 .2 .2 .2 .2 .2 .2 .1 .1 .1 .0 .0 -.1 -.1 .0 .0 .0 .0 .0 .0 .0 .0 .0 .1 .1 .2 .3 .4 .4 .5
.1 .1 .2 .1 .0 -.1 -.1 -.1 -.1 -.1 -.1 -.2 -.2 -.1 -.1 -.1 -.1 -.2 -.3 -.4 -.3 -.3 -.3 -.2 -.3 -.3 -.3 -.3 -.3 -.3 -.2 -.1 -.1 .0 .0 .0
-.3 -.2 -.2 -.1 -.1 -.2 -.2 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.4 -.4 -.5 -.5 -.5 -.4 -.3 -.2 -.1 -.3 -.4 -.4 -.3 -.1 -.2 -.1 -.1 -.1 -.2 -.2 -.3 -.3
-.2 -.2 -.2 -.1 -.2 -.2 -.2 -.1 -.1 -.2 -.2 -.2 -.2 -.3 -.3 -.4 -.5 -.5 -.5 -.5 -.5 -.4 -.2 -.1 -.1 -.1 -.2 -.2 -.3 -.3 -.3 -.3 -.2 -.1 -.2 -.2

Figure 37. ATOVS SD O-B brightness temperature differences (deg C). AUGUST 2001

Channel: AMSUA-7 (300 hPa)

NOAA15, using all observations

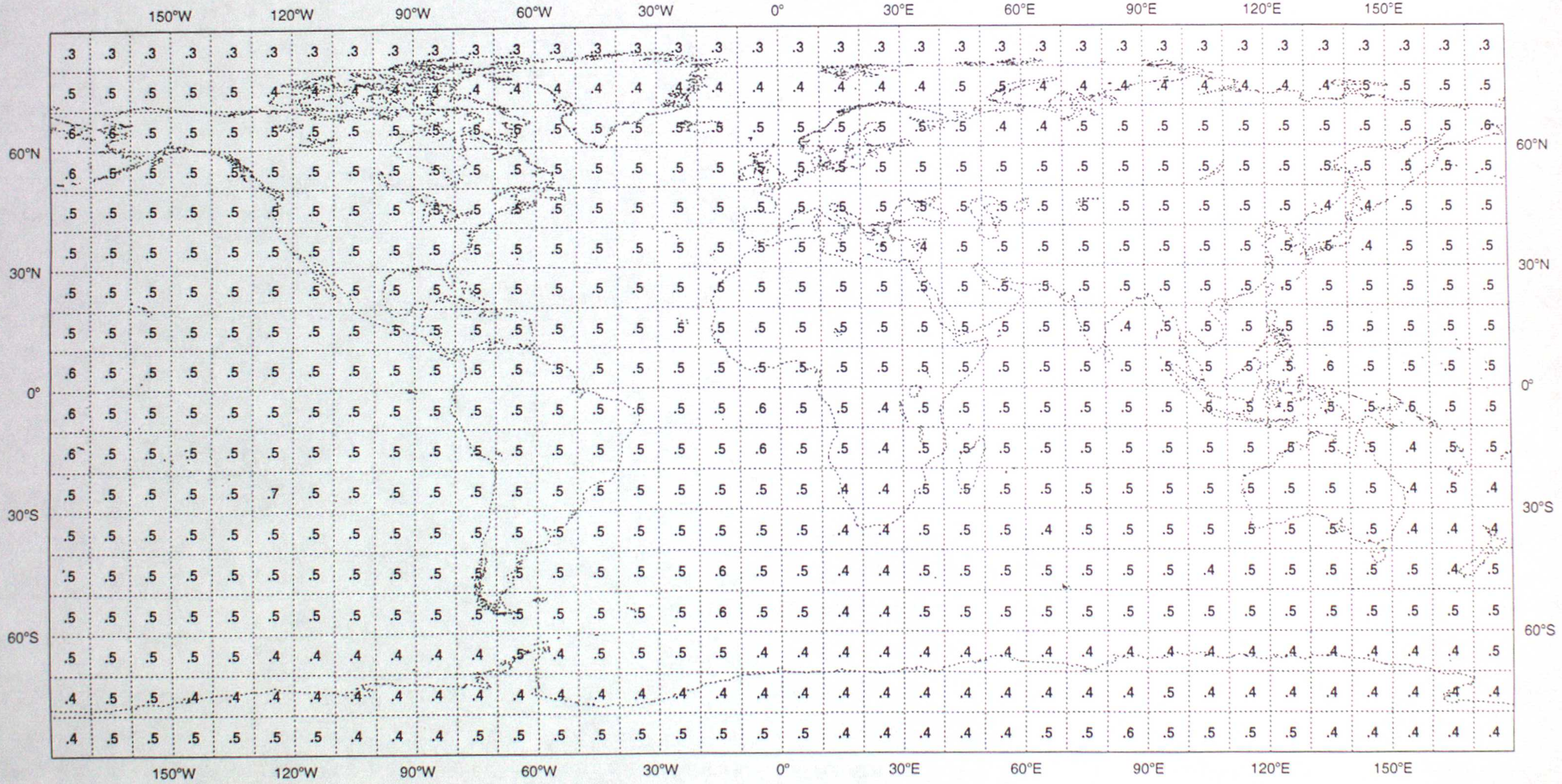

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.5 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .5
.6 .6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6
.6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .5 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5
.6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5
.6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .5 .5 .6 .5 .5
.6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5
.5 .5 .5 .5 .5 .7 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .4
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .4
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .4 .4 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .4 .5
.5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .6 .5 .5 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
.5 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4 .5 .4 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5
.4 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4
.4 .5 .5 .5 .5 .5 .5 .4 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .4 .4 .4 .5 .5 .6 .5 .5 .5 .5 .4 .4 .4 .4 .4

Figure 38. ATOVS MEAN O-B brightness temperature differences (deg C). AUGUST 2001

Channel: AMSUA-9 (100 hPa)

NOAA15, using all observations

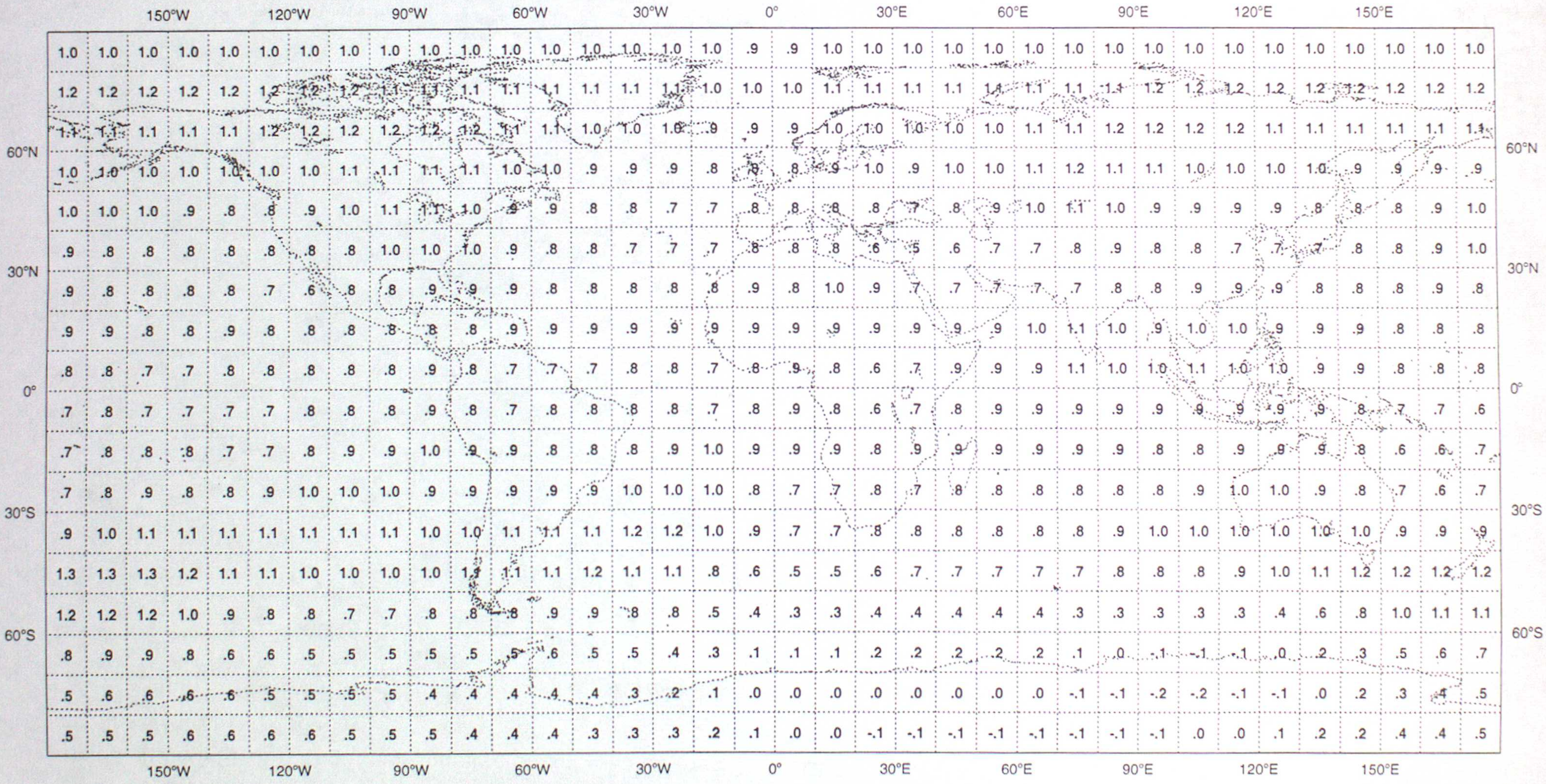

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S
1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 .9 .9 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.0 1.0 1.0 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2
1.1 1.1 1.1 1.1 1.1 1.2 1.2 1.2 1.2 1.2 1.2 1.1 1.1 1.0 1.0 1.0 .9 .9 .9 1.0 1.0 1.0 1.0 1.0 1.1 1.1 1.2 1.2 1.2 1.2 1.1 1.1 1.1 1.1 1.1 1.1
1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.1 1.1 1.1 1.1 1.0 1.0 .9 .9 .9 .8 .8 .8 .9 1.0 .9 1.0 1.0 1.1 1.2 1.1 1.1 1.0 1.0 1.0 1.0 .9 .9 .9 .9
1.0 1.0 1.0 .9 .8 .8 .9 1.0 1.1 1.1 1.0 .9 .9 .8 .8 .7 .7 .8 .8 .8 .8 .7 .8 .9 1.0 1.1 1.0 .9 .9 .9 .9 .8 .8 .8 .9 1.0
.9 .8 .8 .8 .8 .8 .8 .8 1.0 1.0 1.0 .9 .8 .8 .7 .7 .7 .8 .8 .8 .6 .5 .6 .7 .7 .8 .9 .8 .8 .7 .7 .7 .8 .8 .9 1.0
.9 .8 .8 .8 .8 .7 .6 .8 .8 .9 .9 .9 .8 .8 .8 .8 .8 .9 .8 1.0 .9 .7 .7 .7 .7 .7 .8 .8 .9 .9 .9 .8 .8 .8 .9 .8
.9 .9 .8 .8 .9 .8 .8 .8 .8 .8 .8 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 1.0 1.1 1.0 .9 1.0 1.0 .9 .9 .9 .8 .8 .8
.8 .8 .7 .7 .8 .8 .8 .8 .8 .9 .8 .7 .7 .7 .8 .8 .7 .8 .9 .8 .6 .7 .9 .9 .9 1.1 1.0 1.0 1.1 1.0 1.0 .9 .9 .8 .8 .8
.7 .8 .7 .7 .7 .7 .8 .8 .8 .9 .8 .7 .8 .8 .8 .8 .7 .8 .9 .8 .6 .7 .8 .9 .9 .9 .9 .9 .9 .9 .9 .9 .8 .7 .7 .6
.7 .8 .8 .8 .7 .7 .8 .9 .9 1.0 .9 .9 .8 .8 .8 .9 1.0 .9 .9 .9 .8 .9 .9 .9 .9 .9 .9 .8 .8 .9 .9 .9 .8 .6 .6 .7
.7 .8 .9 .8 .8 .9 1.0 1.0 1.0 .9 .9 .9 .9 .9 1.0 1.0 1.0 .8 .7 .7 .8 .7 .8 .8 .8 .8 .8 .8 .9 1.0 1.0 .9 .8 .7 .6 .7
.9 1.0 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.0 1.0 1.1 1.1 1.1 1.2 1.2 1.0 .9 .7 .7 .8 .8 .8 .8 .8 .8 .9 1.0 1.0 1.0 1.0 1.0 1.0 .9 .9 .9
1.3 1.3 1.3 1.2 1.1 1.1 1.0 1.0 1.0 1.0 1.1 1.1 1.1 1.2 1.1 1.1 .8 .6 .5 .5 .6 .7 .7 .7 .7 .7 .8 .8 .8 .9 1.0 1.1 1.2 1.2 1.2 1.2
1.2 1.2 1.2 1.0 .9 .8 .8 .7 .7 .8 .8 .8 .9 .9 .8 .8 .5 .4 .3 .3 .4 .4 .4 .4 .4 .3 .3 .3 .3 .3 .4 .6 .8 1.0 1.1 1.1
.8 .9 .9 .8 .6 .6 .5 .5 .5 .5 .5 .5 .6 .5 .5 .4 .3 .1 .1 .1 .2 .2 .2 .2 .2 .1 .0 -.1 -.1 -.1 .0 .2 .3 .5 .6 .7
.5 .6 .6 .6 .6 .5 .5 .5 .5 .4 .4 .4 .4 .4 .3 .2 .1 .0 .0 .0 .0 .0 .0 .0 .0 -.1 -.1 -.2 -.2 -.1 -.1 .0 .2 .3 .4 .5
.5 .5 .5 .6 .6 .6 .6 .5 .5 .5 .4 .4 .4 .3 .3 .3 .2 .1 .0 .0 -.1 -.1 -.1 -.1 -.1 -.1 -.1 -.1 .0 .0 .1 .2 .2 .4 .4 .5

Figure 39. ATOVS SD O-B brightness temperature differences (deg C). AUGUST 2001

Channel: AMSUA-9 (100 hPa)

NOAA15, using all observations

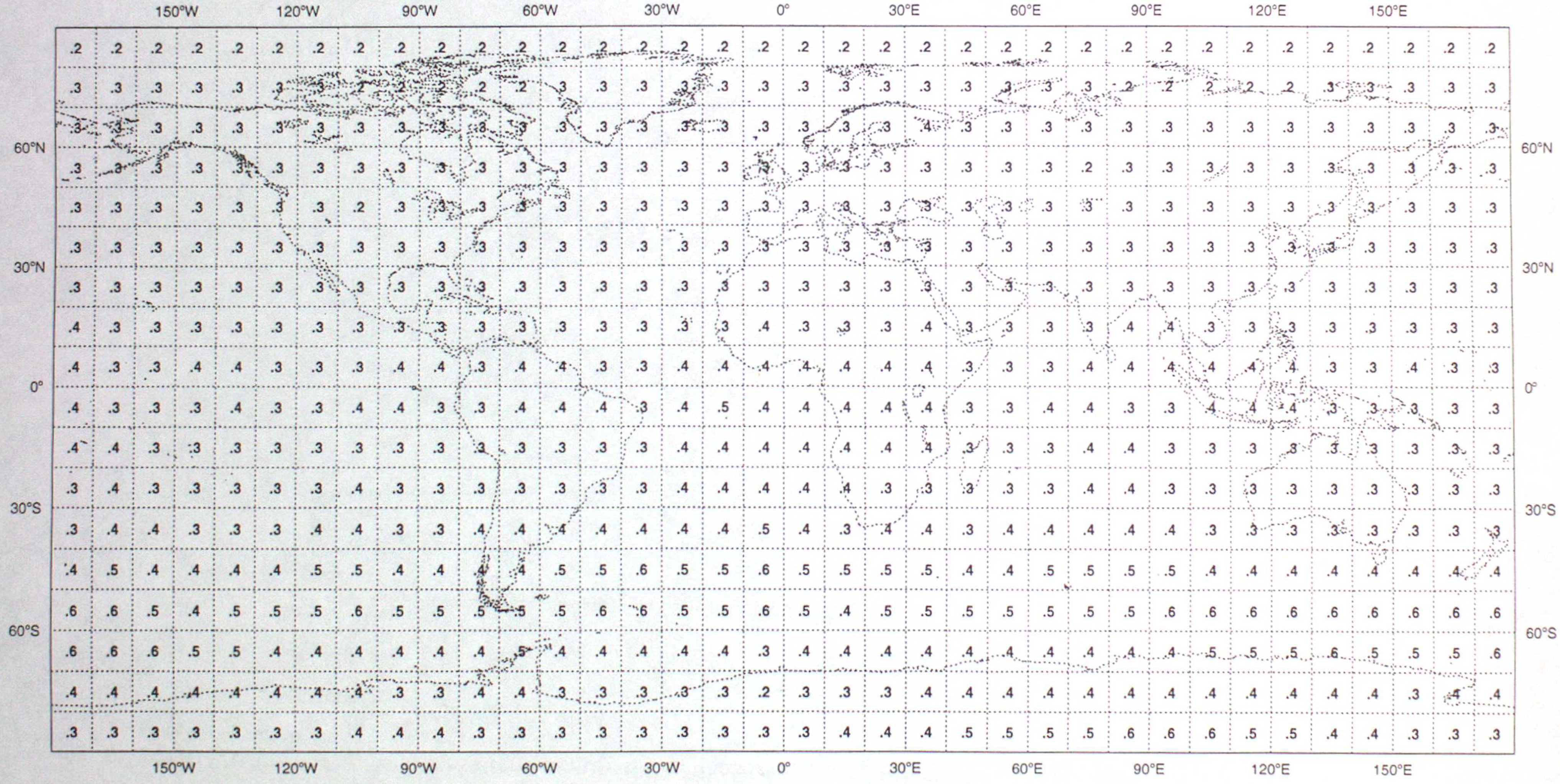
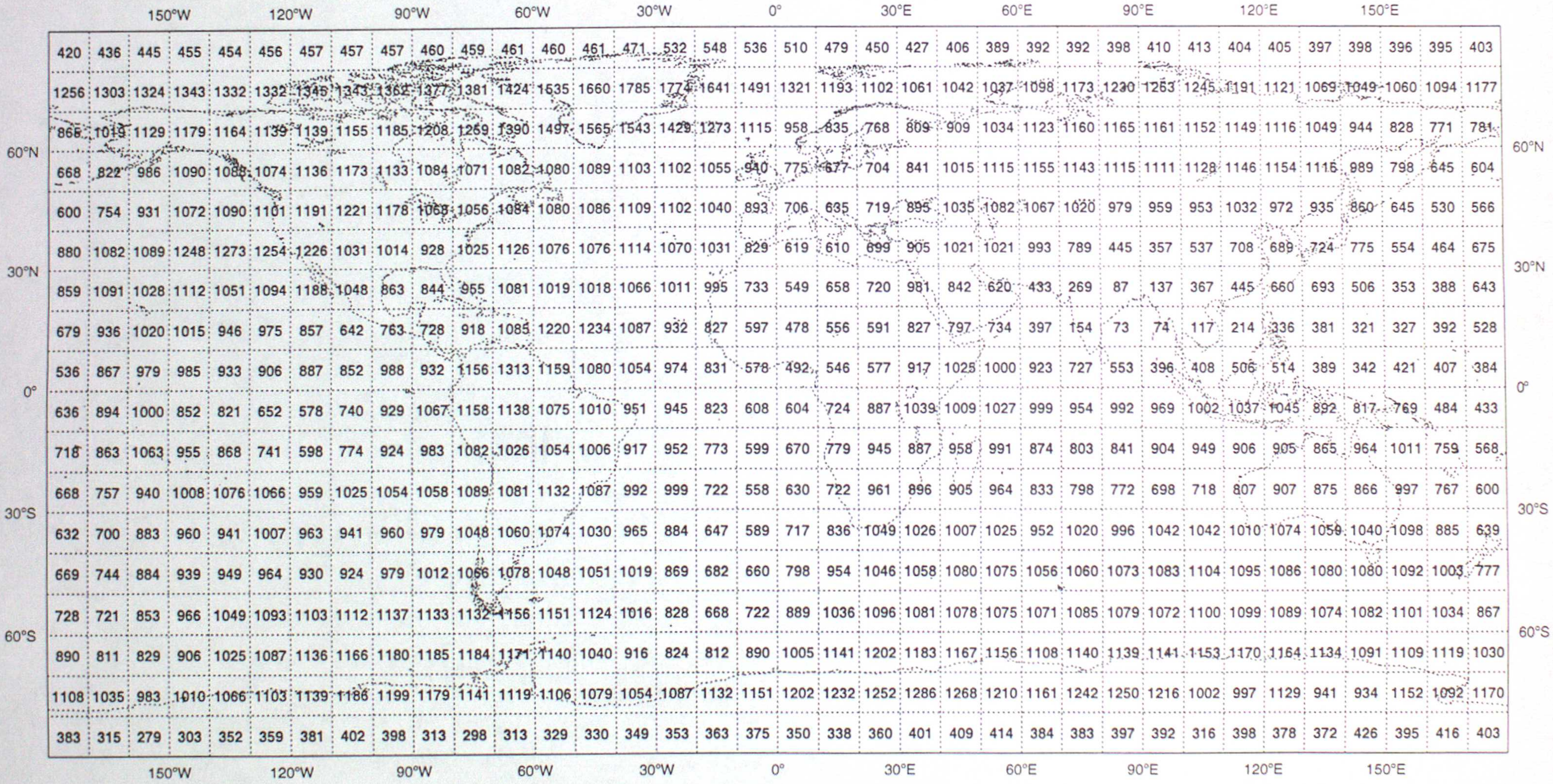

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

Figure 40. ATOVS mean daily count. AUGUST 2001
NOAA16, using all observations
Global average number of observations in 24 hours = 576153

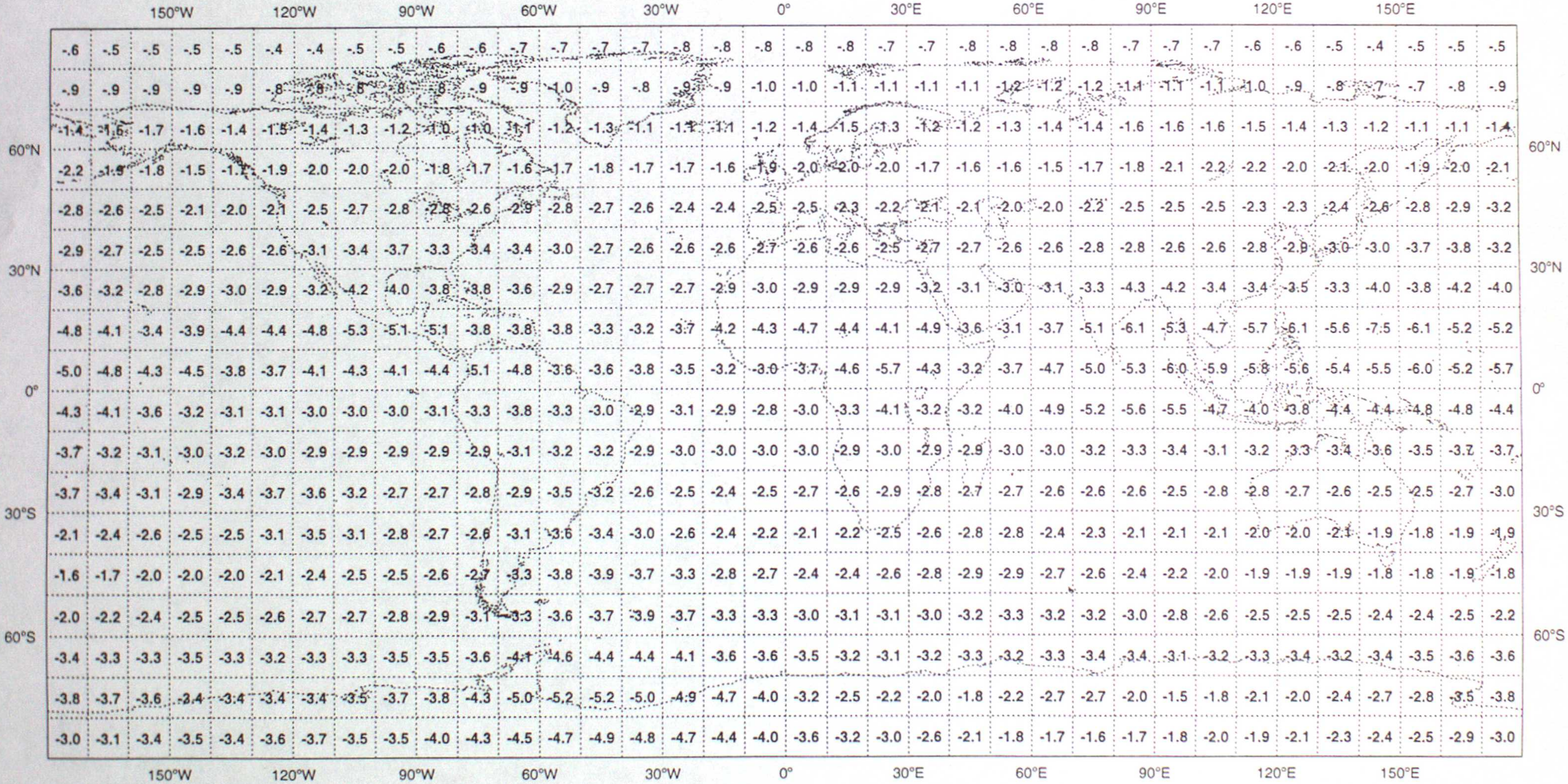


420	436	445	455	454	456	457	457	457	460	459	461	460	461	471	532	548	536	510	479	450	427	406	389	392	392	398	410	413	404	405	397	398	396	395	403
1256	1303	1324	1343	1332	1332	1345	1343	1362	1377	1381	1424	1535	1660	1785	1774	1641	1491	1321	1193	1102	1061	1042	1037	1098	1173	1230	1263	1245	1191	1121	1069	1049	1060	1094	1177
866	1019	1129	1179	1164	1139	1139	1155	1185	1208	1259	1390	1497	1565	1543	1429	1273	1115	958	835	768	809	909	1034	1123	1160	1165	1161	1152	1149	1116	1049	944	828	771	781
668	822	986	1090	1088	1074	1136	1173	1133	1084	1071	1082	1080	1089	1103	1102	1055	940	775	677	704	841	1015	1115	1155	1143	1115	1111	1128	1146	1154	1116	989	798	645	604
600	754	931	1072	1090	1101	1191	1221	1178	1068	1056	1084	1080	1086	1109	1102	1040	893	706	635	719	895	1035	1082	1067	1020	979	959	953	1032	972	935	860	645	530	566
880	1082	1089	1248	1273	1254	1226	1031	1014	928	1025	1126	1076	1076	1114	1070	1031	829	619	610	699	905	1021	1021	993	789	445	357	537	708	689	724	775	554	464	675
859	1091	1028	1112	1051	1094	1188	1048	863	844	955	1081	1019	1018	1066	1011	995	733	549	658	720	981	842	620	433	269	87	137	367	445	660	693	506	353	388	643
679	936	1020	1015	946	975	857	642	763	728	918	1085	1220	1234	1087	932	827	597	478	556	591	827	797	734	397	154	73	74	117	214	336	381	321	327	392	528
536	867	979	985	933	906	887	852	988	932	1156	1313	1159	1080	1054	974	831	578	492	546	577	917	1025	1000	923	727	553	396	408	506	514	389	342	421	407	384
636	894	1000	852	821	652	578	740	929	1067	1158	1138	1075	1010	951	945	823	608	604	724	887	1039	1009	1027	999	954	992	969	1002	1037	1045	892	817	769	484	433
718	863	1063	955	868	741	598	774	924	983	1082	1026	1054	1006	917	952	773	599	670	779	945	887	958	991	874	803	841	904	949	906	905	865	964	1011	759	568
668	757	940	1008	1076	1066	959	1025	1054	1058	1089	1081	1132	1087	992	999	722	558	630	722	961	896	905	964	833	798	772	698	718	807	907	875	866	997	767	600
632	700	883	960	941	1007	963	941	960	979	1048	1060	1074	1030	965	884	647	589	717	836	1049	1026	1007	1025	952	1020	996	1042	1042	1010	1074	1059	1040	1098	885	639
669	744	884	939	949	964	930	924	979	1012	1066	1078	1048	1051	1019	869	682	660	798	954	1046	1058	1080	1075	1056	1060	1073	1083	1104	1095	1086	1080	1080	1092	1003	777
728	721	853	966	1049	1093	1103	1112	1137	1133	1132	1156	1151	1124	1016	828	668	722	889	1036	1096	1081	1078	1075	1071	1085	1079	1072	1100	1099	1089	1074	1082	1101	1034	867
890	811	829	906	1025	1087	1136	1166	1180	1185	1184	1171	1140	1040	916	824	812	890	1005	1141	1202	1183	1167	1156	1108	1140	1139	1141	1153	1170	1164	1134	1091	1109	1119	1030
1108	1035	983	1010	1066	1103	1139	1186	1199	1179	1141	1119	1106	1079	1054	1087	1132	1151	1202	1232	1252	1286	1268	1210	1161	1242	1250	1216	1002	997	1129	941	934	1152	1092	1170
383	315	279	303	352	359	381	402	398	313	298	313	329	330	349	353	363	375	350	338	360	401	409	414	384	383	397	392	316	398	378	372	426	395	416	403

Figure 41. ATOVS MEAN O-B brightness temperature differences (deg C). AUGUST 2001

Channel: HIRS8 (Surface)

NOAA16, using all observations

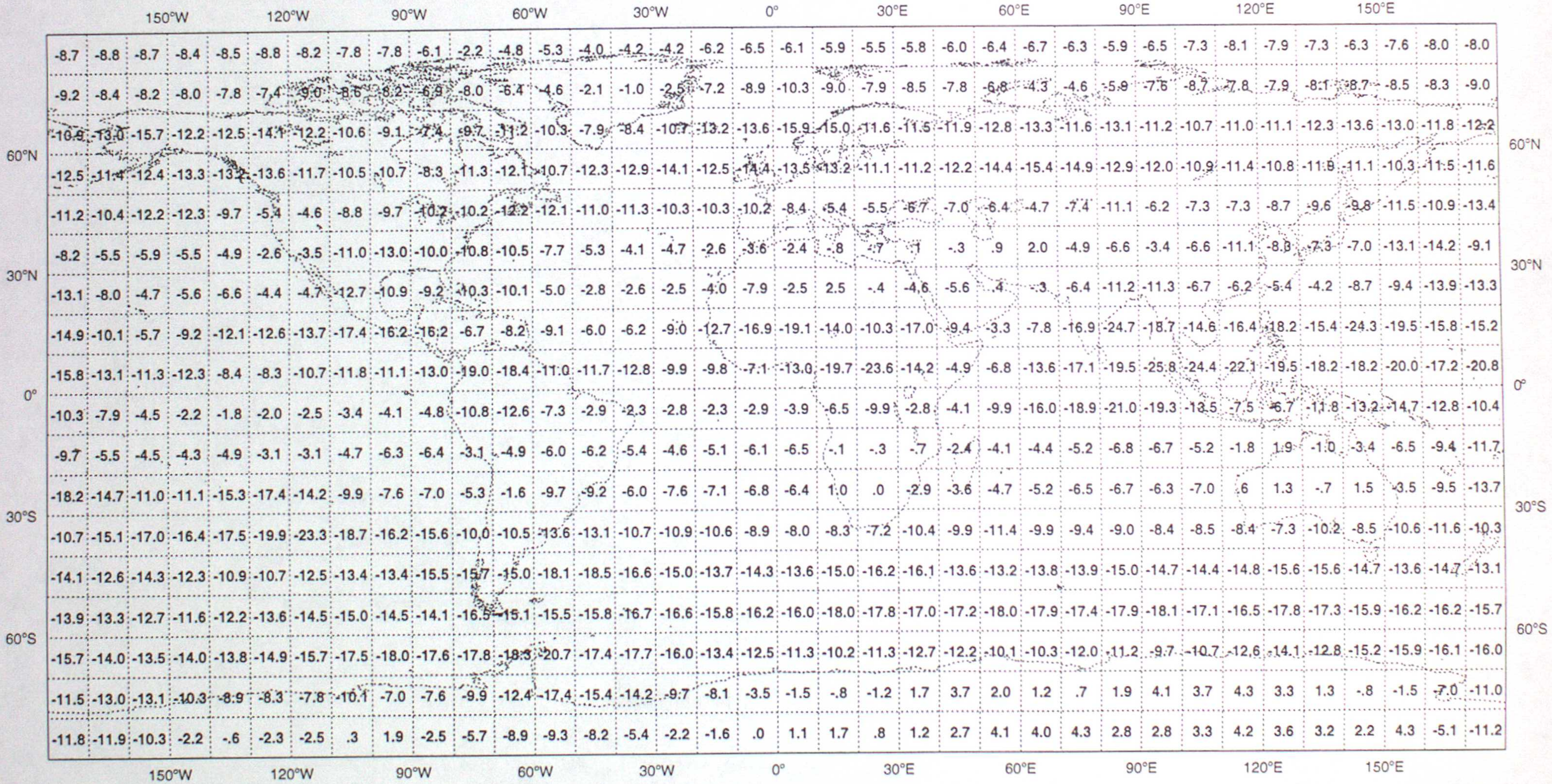


-.6	-.5	-.5	-.5	-.5	-.4	-.4	-.5	-.5	-.6	-.6	-.7	-.7	-.7	-.7	-.8	-.8	-.8	-.8	-.8	-.7	-.7	-.8	-.8	-.8	-.8	-.7	-.7	-.7	-.6	-.6	-.5	-.4	-.5	-.5	-.5
-.9	-.9	-.9	-.9	-.9	-.8	-.8	-.8	-.8	-.8	-.9	-.9	-1.0	-.9	-.8	-.9	-.9	-1.0	-1.0	-1.1	-1.1	-1.1	-1.1	-1.2	-1.2	-1.2	-1.1	-1.1	-1.1	-1.0	-.9	-.8	-.7	-.7	-.8	-.9
-1.4	-1.6	-1.7	-1.6	-1.4	-1.5	-1.4	-1.3	-1.2	-1.0	-1.0	-1.1	-1.2	-1.3	-1.1	-1.1	-1.1	-1.2	-1.4	-1.5	-1.3	-1.2	-1.2	-1.3	-1.4	-1.4	-1.6	-1.6	-1.6	-1.5	-1.4	-1.3	-1.2	-1.1	-1.1	-1.4
-2.2	-1.9	-1.8	-1.5	-1.7	-1.9	-2.0	-2.0	-2.0	-1.8	-1.7	-1.6	-1.7	-1.8	-1.7	-1.7	-1.6	-1.9	-2.0	-2.0	-2.0	-1.7	-1.6	-1.6	-1.5	-1.7	-1.8	-2.1	-2.2	-2.2	-2.0	-2.1	-2.0	-1.9	-2.0	-2.1
-2.8	-2.6	-2.5	-2.1	-2.0	-2.1	-2.5	-2.7	-2.8	-2.8	-2.6	-2.9	-2.8	-2.7	-2.6	-2.4	-2.4	-2.5	-2.5	-2.3	-2.2	-2.1	-2.1	-2.0	-2.0	-2.2	-2.5	-2.5	-2.5	-2.3	-2.3	-2.4	-2.6	-2.8	-2.9	-3.2
-2.9	-2.7	-2.5	-2.5	-2.6	-2.6	-3.1	-3.4	-3.7	-3.3	-3.4	-3.4	-3.0	-2.7	-2.6	-2.6	-2.6	-2.7	-2.6	-2.6	-2.5	-2.7	-2.7	-2.6	-2.6	-2.8	-2.8	-2.6	-2.6	-2.8	-2.9	-3.0	-3.0	-3.7	-3.8	-3.2
-3.6	-3.2	-2.8	-2.9	-3.0	-2.9	-3.2	-4.2	-4.0	-3.8	-3.8	-3.6	-2.9	-2.7	-2.7	-2.7	-2.9	-3.0	-2.9	-2.9	-2.9	-3.2	-3.1	-3.0	-3.1	-3.3	-4.3	-4.2	-3.4	-3.4	-3.5	-3.3	-4.0	-3.8	-4.2	-4.0
-4.8	-4.1	-3.4	-3.9	-4.4	-4.4	-4.8	-5.3	-5.1	-5.1	-3.8	-3.8	-3.8	-3.3	-3.2	-3.7	-4.2	-4.3	-4.7	-4.4	-4.1	-4.9	-3.6	-3.1	-3.7	-5.1	-6.1	-5.3	-4.7	-5.7	-6.1	-5.6	-7.5	-6.1	-5.2	-5.2
-5.0	-4.8	-4.3	-4.5	-3.8	-3.7	-4.1	-4.3	-4.1	-4.4	-5.1	-4.8	-3.6	-3.6	-3.8	-3.5	-3.2	-3.0	-3.7	-4.6	-5.7	-4.3	-3.2	-3.7	-4.7	-5.0	-5.3	-6.0	-5.9	-5.8	-5.6	-5.4	-5.5	-6.0	-5.2	-5.7
-4.3	-4.1	-3.6	-3.2	-3.1	-3.1	-3.0	-3.0	-3.0	-3.1	-3.3	-3.8	-3.3	-3.0	-2.9	-3.1	-2.9	-2.8	-3.0	-3.3	-4.1	-3.2	-3.2	-4.0	-4.9	-5.2	-5.6	-5.5	-4.7	-4.0	-3.8	-4.4	-4.4	-4.8	-4.8	-4.4
-3.7	-3.2	-3.1	-3.0	-3.2	-3.0	-2.9	-2.9	-2.9	-2.9	-2.9	-3.1	-3.2	-3.2	-2.9	-3.0	-3.0	-3.0	-3.0	-2.9	-3.0	-2.9	-2.9	-3.0	-3.0	-3.2	-3.3	-3.4	-3.1	-3.2	-3.3	-3.4	-3.6	-3.5	-3.7	-3.7
-3.7	-3.4	-3.1	-2.9	-3.4	-3.7	-3.6	-3.2	-2.7	-2.7	-2.8	-2.9	-3.5	-3.2	-2.6	-2.5	-2.4	-2.5	-2.7	-2.6	-2.9	-2.8	-2.7	-2.7	-2.6	-2.6	-2.6	-2.5	-2.8	-2.8	-2.7	-2.6	-2.5	-2.5	-2.7	-3.0
-2.1	-2.4	-2.6	-2.5	-2.5	-3.1	-3.5	-3.1	-2.8	-2.7	-2.6	-3.1	-3.6	-3.4	-3.0	-2.6	-2.4	-2.2	-2.1	-2.2	-2.5	-2.6	-2.8	-2.8	-2.4	-2.3	-2.1	-2.1	-2.1	-2.0	-2.0	-2.1	-1.9	-1.8	-1.9	-1.9
-1.6	-1.7	-2.0	-2.0	-2.0	-2.1	-2.4	-2.5	-2.5	-2.6	-2.7	-3.3	-3.8	-3.9	-3.7	-3.3	-2.8	-2.7	-2.4	-2.4	-2.6	-2.8	-2.9	-2.9	-2.7	-2.6	-2.4	-2.2	-2.0	-1.9	-1.9	-1.9	-1.8	-1.8	-1.9	-1.8
-2.0	-2.2	-2.4	-2.5	-2.5	-2.6	-2.7	-2.7	-2.8	-2.9	-3.1	-3.3	-3.6	-3.7	-3.9	-3.7	-3.3	-3.3	-3.0	-3.1	-3.1	-3.0	-3.2	-3.3	-3.2	-3.2	-3.0	-2.8	-2.6	-2.5	-2.5	-2.5	-2.4	-2.4	-2.5	-2.2
-3.4	-3.3	-3.3	-3.5	-3.3	-3.2	-3.3	-3.3	-3.5	-3.5	-3.6	-4.1	-4.6	-4.4	-4.4	-4.1	-3.6	-3.6	-3.5	-3.2	-3.1	-3.2	-3.3	-3.2	-3.3	-3.4	-3.4	-3.1	-3.2	-3.3	-3.4	-3.2	-3.4	-3.5	-3.6	-3.6
-3.8	-3.7	-3.6	-3.4	-3.4	-3.4	-3.4	-3.5	-3.7	-3.8	-4.3	-5.0	-5.2	-5.2	-5.0	-4.9	-4.7	-4.0	-3.2	-2.5	-2.2	-2.0	-1.8	-2.2	-2.7	-2.7	-2.0	-1.5	-1.8	-2.1	-2.0	-2.4	-2.7	-2.8	-3.5	-3.8
-3.0	-3.1	-3.4	-3.5	-3.4	-3.6	-3.7	-3.5	-3.5	-4.0	-4.3	-4.5	-4.7	-4.9	-4.8	-4.7	-4.4	-4.0	-3.6	-3.2	-3.0	-2.6	-2.1	-1.8	-1.7	-1.6	-1.7	-1.8	-2.0	-1.9	-2.1	-2.3	-2.4	-2.5	-2.9	-3.0

Figure 42. ATOVS SD O-B brightness temperature differences (deg C). AUGUST 2001

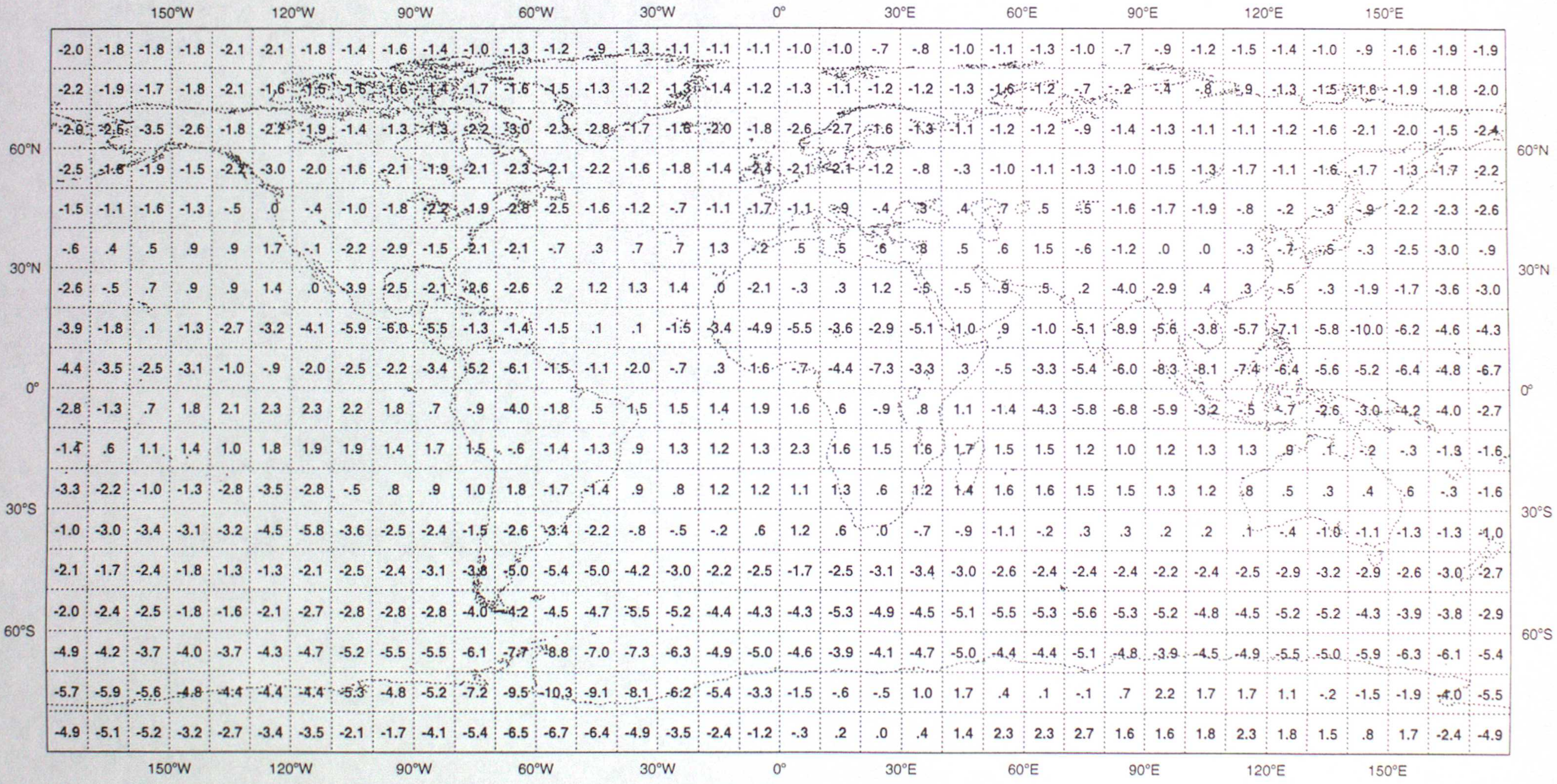
Channel: HIRS8 (Surface)

NOAA16, using all observations



-8.7	-8.8	-8.7	-8.4	-8.5	-8.8	-8.2	-7.8	-7.8	-6.1	-2.2	-4.8	-5.3	-4.0	-4.2	-4.2	-6.2	-6.5	-6.1	-5.9	-5.5	-5.8	-6.0	-6.4	-6.7	-6.3	-5.9	-6.5	-7.3	-8.1	-7.9	-7.3	-6.3	-7.6	-8.0	-8.0
-9.2	-8.4	-8.2	-8.0	-7.8	-7.4	-9.0	-8.6	-8.2	-6.9	-8.0	-6.4	-4.6	-2.1	-1.0	-2.5	-7.2	-8.9	-10.3	-9.0	-7.9	-8.5	-7.8	-6.8	-4.3	-4.6	-5.9	-7.6	-8.7	-7.8	-7.9	-8.1	-8.7	-8.5	-8.3	-9.0
-10.9	-13.0	-15.7	-12.2	-12.5	-14.1	-12.2	-10.6	-9.1	-7.4	-9.7	-11.2	-10.3	-7.9	-8.4	-10.7	-13.2	-13.6	-15.9	-15.0	-11.6	-11.5	-11.9	-12.8	-13.3	-11.6	-13.1	-11.2	-10.7	-11.0	-11.1	-12.3	-13.6	-13.0	-11.8	-12.2
-12.5	-11.4	-12.4	-13.3	-13.2	-13.6	-11.7	-10.5	-10.7	-8.3	-11.3	-12.1	-10.7	-12.3	-12.9	-14.1	-12.5	-14.4	-13.5	-13.2	-11.1	-11.2	-12.2	-14.4	-15.4	-14.9	-12.9	-12.0	-10.9	-11.4	-10.8	-11.8	-11.1	-10.3	-11.5	-11.6
-11.2	-10.4	-12.2	-12.3	-9.7	-5.4	-4.6	-8.8	-9.7	-10.2	-10.2	-12.2	-12.1	-11.0	-11.3	-10.3	-10.3	-10.2	-8.4	-5.4	-5.5	-6.7	-7.0	-6.4	-4.7	-7.4	-11.1	-6.2	-7.3	-7.3	-8.7	-9.6	-9.8	-11.5	-10.9	-13.4
-8.2	-5.5	-5.9	-5.5	-4.9	-2.6	-3.5	-11.0	-13.0	-10.0	-10.8	-10.5	-7.7	-5.3	-4.1	-4.7	-2.6	-3.6	-2.4	-.8	-.7	.1	-.3	.9	2.0	-4.9	-6.6	-3.4	-6.6	-11.1	-8.8	-7.3	-7.0	-13.1	-14.2	-9.1
-13.1	-8.0	-4.7	-5.6	-6.6	-4.4	-4.7	-12.7	-10.9	-9.2	-10.3	-10.1	-5.0	-2.8	-2.6	-2.5	-4.0	-7.9	-2.5	2.5	-.4	-4.6	-5.6	.4	-.3	-6.4	-11.2	-11.3	-6.7	-6.2	-5.4	-4.2	-8.7	-9.4	-13.9	-13.3
-14.9	-10.1	-5.7	-9.2	-12.1	-12.6	-13.7	-17.4	-16.2	-16.2	-6.7	-8.2	-9.1	-6.0	-6.2	-9.0	-12.7	-16.9	-19.1	-14.0	-10.3	-17.0	-9.4	-3.3	-7.8	-16.9	-24.7	-18.7	-14.6	-16.4	-18.2	-15.4	-24.3	-19.5	-15.8	-15.2
-15.8	-13.1	-11.3	-12.3	-8.4	-8.3	-10.7	-11.8	-11.1	-13.0	-19.0	-18.4	-11.0	-11.7	-12.8	-9.9	-9.8	-7.1	-13.0	-19.7	-23.6	-14.2	-4.9	-6.8	-13.6	-17.1	-19.5	-25.8	-24.4	-22.1	-19.5	-18.2	-18.2	-20.0	-17.2	-20.8
-10.3	-7.9	-4.5	-2.2	-1.8	-2.0	-2.5	-3.4	-4.1	-4.8	-10.8	-12.6	-7.3	-2.9	-2.3	-2.8	-2.3	-2.9	-3.9	-6.5	-9.9	-2.8	-4.1	-9.9	-16.0	-18.9	-21.0	-19.3	-13.5	-7.5	-6.7	-11.8	-13.2	-14.7	-12.8	-10.4
-9.7	-5.5	-4.5	-4.3	-4.9	-3.1	-3.1	-4.7	-6.3	-6.4	-3.1	-4.9	-6.0	-6.2	-5.4	-4.6	-5.1	-6.1	-6.5	-.1	-.3	-.7	-2.4	-4.1	-4.4	-5.2	-6.8	-6.7	-5.2	-1.8	1.9	-1.0	-3.4	-6.5	-9.4	-11.7
-18.2	-14.7	-11.0	-11.1	-15.3	-17.4	-14.2	-9.9	-7.6	-7.0	-5.3	-1.6	-9.7	-9.2	-6.0	-7.6	-7.1	-6.8	-6.4	1.0	.0	-2.9	-3.6	-4.7	-5.2	-6.5	-6.7	-6.3	-7.0	.6	1.3	-.7	1.5	-3.5	-9.5	-13.7
-10.7	-15.1	-17.0	-16.4	-17.5	-19.9	-23.3	-18.7	-16.2	-15.6	-10.0	-10.5	-13.6	-13.1	-10.7	-10.9	-10.6	-8.9	-8.0	-8.3	-7.2	-10.4	-9.9	-11.4	-9.9	-9.4	-9.0	-8.4	-8.5	-8.4	-7.3	-10.2	-8.5	-10.6	-11.6	-10.3
-14.1	-12.6	-14.3	-12.3	-10.9	-10.7	-12.5	-13.4	-13.4	-15.5	-15.7	-15.0	-18.1	-18.5	-16.6	-15.0	-13.7	-14.3	-13.6	-15.0	-16.2	-16.1	-13.6	-13.2	-13.8	-13.9	-15.0	-14.7	-14.4	-14.8	-15.6	-15.6	-14.7	-13.6	-14.7	-13.1
-13.9	-13.3	-12.7	-11.6	-12.2	-13.6	-14.5	-15.0	-14.5	-14.1	-16.5	-15.1	-15.5	-15.8	-16.7	-16.6	-15.8	-16.2	-16.0	-18.0	-17.8	-17.0	-17.2	-18.0	-17.9	-17.4	-17.9	-18.1	-17.1	-16.5	-17.8	-17.3	-15.9	-16.2	-16.2	-15.7
-15.7	-14.0	-13.5	-14.0	-13.8	-14.9	-15.7	-17.5	-18.0	-17.6	-17.8	-18.3	-20.7	-17.4	-17.7	-16.0	-13.4	-12.5	-11.3	-10.2	-11.3	-12.7	-12.2	-10.1	-10.3	-12.0	-11.2	-9.7	-10.7	-12.6	-14.1	-12.8	-15.2	-15.9	-16.1	-16.0
-11.5	-13.0	-13.1	-10.3	-8.9	-8.3	-7.8	-10.1	-7.0	-7.6	-9.9	-12.4	-17.4	-15.4	-14.2	-9.7	-8.1	-3.5	-1.5	-.8	-1.2	1.7	3.7	2.0	1.2	.7	1.9	4.1	3.7	4.3	3.3	1.3	-.8	-1.5	-7.0	-11.0
-11.8	-11.9	-10.3	-2.2	-.6	-2.3	-2.5	.3	1.9	-2.5	-5.7	-8.9	-9.3	-8.2	-5.4	-2.2	-1.6	.0	1.1	1.7	.8	1.2	2.7	4.1	4.0	4.3	2.8	2.8	3.3	4.2	3.6	3.2	2.2	4.3	-5.1	-11.2

Figure 43. ATOVS MEAN O-B brightness temperature differences (deg C). AUGUST 2001
Channel: HIRS15 (700 hPa)
NOAA16, using all observations

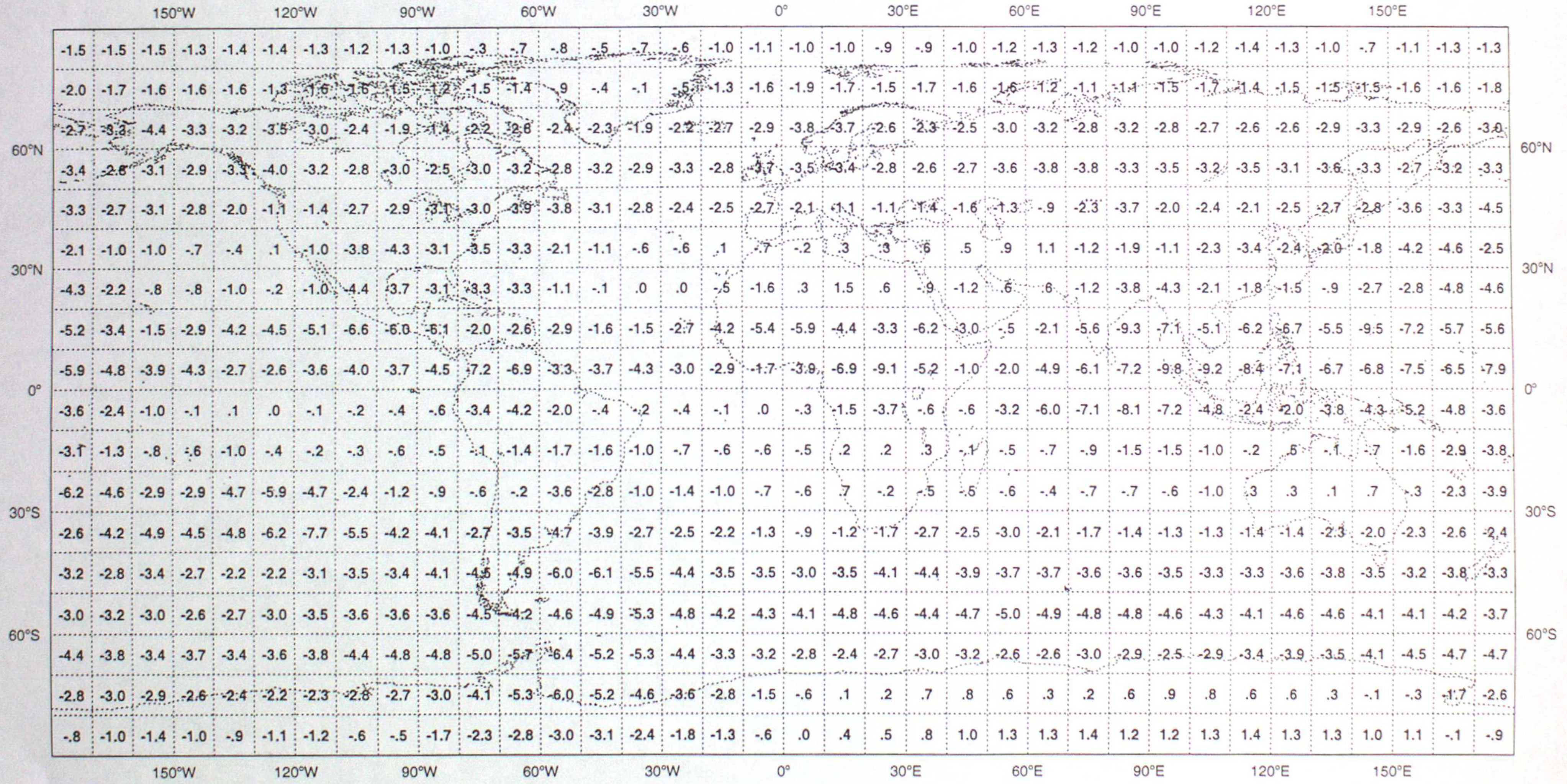


-2.0	-1.8	-1.8	-1.8	-2.1	-2.1	-1.8	-1.4	-1.6	-1.4	-1.0	-1.3	-1.2	-.9	-1.3	-1.1	-1.1	-1.1	-1.0	-1.0	-.7	-.8	-1.0	-1.1	-1.3	-1.0	-.7	-.9	-1.2	-1.5	-1.4	-1.0	-.9	-1.6	-1.9	-1.9
-2.2	-1.9	-1.7	-1.8	-2.1	-1.6	-1.5	-1.6	-1.6	-1.4	-1.7	-1.6	-1.5	-1.3	-1.2	-1.3	-1.4	-1.2	-1.3	-1.1	-1.2	-1.2	-1.3	-1.6	-1.2	-.7	-.2	-.4	-.8	-.9	-1.3	-1.5	-1.6	-1.9	-1.8	-2.0
-2.8	-2.6	-3.5	-2.6	-1.8	-2.2	-1.9	-1.4	-1.3	-1.3	-2.2	-3.0	-2.3	-2.8	-1.7	-1.6	-2.0	-1.8	-2.6	-2.7	-1.6	-1.3	-1.1	-1.2	-1.2	-.9	-1.4	-1.3	-1.1	-1.1	-1.2	-1.6	-2.1	-2.0	-1.5	-2.4
-2.5	-1.8	-1.9	-1.5	-2.2	-3.0	-2.0	-1.6	-2.1	-1.9	-2.1	-2.3	-2.1	-2.2	-1.6	-1.8	-1.4	-2.4	-2.1	-2.1	-1.2	-.8	-.3	-1.0	-1.1	-1.3	-1.0	-1.5	-1.3	-1.7	-1.1	-1.6	-1.7	-1.3	-1.7	-2.2
-1.5	-1.1	-1.6	-1.3	-.5	.0	-.4	-1.0	-1.8	-2.2	-1.9	-2.8	-2.5	-1.6	-1.2	-.7	-1.1	-1.7	-1.1	-.9	-.4	.3	.4	.7	.5	-.5	-1.6	-1.7	-1.9	-.8	-.2	-.3	-.9	-2.2	-2.3	-2.6
-.6	.4	.5	.9	.9	1.7	-.1	-2.2	-2.9	-1.5	-2.1	-2.1	-.7	.3	.7	.7	1.3	-.2	.5	.5	.6	.8	.5	.6	1.5	-.6	-1.2	.0	.0	-.3	-.7	-.5	-.3	-2.5	-3.0	-.9
-2.6	-.5	.7	.9	.9	1.4	.0	-3.9	-2.5	-2.1	-2.6	-2.6	.2	1.2	1.3	1.4	.0	-2.1	-.3	.3	1.2	-.5	-.5	.9	.5	.2	-4.0	-2.9	.4	.3	-.5	-.3	-1.9	-1.7	-3.6	-3.0
-3.9	-1.8	.1	-1.3	-2.7	-3.2	-4.1	-5.9	-6.0	-5.5	-1.3	-1.4	-1.5	.1	.1	-1.5	-3.4	-4.9	-5.5	-3.6	-2.9	-5.1	-1.0	.9	-1.0	-5.1	-8.9	-5.6	-3.8	-5.7	-7.1	-5.8	-10.0	-6.2	-4.6	-4.3
-4.4	-3.5	-2.5	-3.1	-1.0	-.9	-2.0	-2.5	-2.2	-3.4	-5.2	-6.1	-1.5	-1.1	-2.0	-.7	.3	-1.6	-.7	-4.4	-7.3	-3.3	.3	-.5	-3.3	-5.4	-6.0	-8.3	-8.1	-7.4	-6.4	-5.6	-5.2	-6.4	-4.8	-6.7
-2.8	-1.3	.7	1.8	2.1	2.3	2.3	2.2	1.8	.7	-.9	-4.0	-1.8	.5	1.5	1.5	1.4	1.9	1.6	.6	-.9	.8	1.1	-1.4	-4.3	-5.8	-6.8	-5.9	-3.2	-.5	-.7	-2.6	-3.0	-4.2	-4.0	-2.7
-1.4	.6	1.1	1.4	1.0	1.8	1.9	1.9	1.4	1.7	1.5	-.6	-1.4	-1.3	.9	1.3	1.2	1.3	2.3	1.6	1.5	1.6	1.7	1.5	1.5	1.2	1.0	1.2	1.3	1.3	.9	.1	-.2	-.3	-1.3	-1.6
-3.3	-2.2	-1.0	-1.3	-2.8	-3.5	-2.8	-.5	.8	.9	1.0	1.8	-1.7	-1.4	.9	.8	1.2	1.2	1.1	1.3	.6	1.2	1.4	1.6	1.6	1.5	1.5	1.3	1.2	.8	.5	.3	.4	.6	-.3	-1.6
-1.0	-3.0	-3.4	-3.1	-3.2	-4.5	-5.8	-3.6	-2.5	-2.4	-1.5	-2.6	-3.4	-2.2	-.8	-.5	-.2	.6	1.2	.6	.0	-.7	-.9	-1.1	-.2	.3	.3	.2	.2	.1	-.4	-1.0	-1.1	-1.3	-1.3	-1.0
-2.1	-1.7	-2.4	-1.8	-1.3	-1.3	-2.1	-2.5	-2.4	-3.1	-3.8	-5.0	-5.4	-5.0	-4.2	-3.0	-2.2	-2.5	-1.7	-2.5	-3.1	-3.4	-3.0	-2.6	-2.4	-2.4	-2.4	-2.2	-2.4	-2.5	-2.9	-3.2	-2.9	-2.6	-3.0	-2.7
-2.0	-2.4	-2.5	-1.8	-1.6	-2.1	-2.7	-2.8	-2.8	-2.8	-4.0	-4.2	-4.5	-4.7	-5.5	-5.2	-4.4	-4.3	-4.3	-5.3	-4.9	-4.5	-5.1	-5.5	-5.3	-5.6	-5.3	-5.2	-4.8	-4.5	-5.2	-5.2	-4.3	-3.9	-3.8	-2.9
-4.9	-4.2	-3.7	-4.0	-3.7	-4.3	-4.7	-5.2	-5.5	-5.5	-6.1	-7.7	-8.8	-7.0	-7.3	-6.3	-4.9	-5.0	-4.6	-3.9	-4.1	-4.7	-5.0	-4.4	-4.4	-5.1	-4.8	-3.9	-4.5	-4.9	-5.5	-5.0	-5.9	-6.3	-6.1	-5.4
-5.7	-5.9	-5.6	-4.8	-4.4	-4.4	-4.4	-5.3	-4.8	-5.2	-7.2	-9.5	-10.3	-9.1	-8.1	-6.2	-5.4	-3.3	-1.5	-.6	-.5	1.0	1.7	.4	.1	-.1	.7	2.2	1.7	1.7	1.1	-.2	-1.5	-1.9	-4.0	-5.5
-4.9	-5.1	-5.2	-3.2	-2.7	-3.4	-3.5	-2.1	-1.7	-4.1	-5.4	-6.5	-6.7	-6.4	-4.9	-3.5	-2.4	-1.2	-.3	.2	.0	.4	1.4	2.3	2.3	2.7	1.6	1.6	1.8	2.3	1.8	1.5	.8	1.7	-2.4	-4.9

Figure 44. ATOVS SD O-B brightness temperature differences (deg C). AUGUST 2001

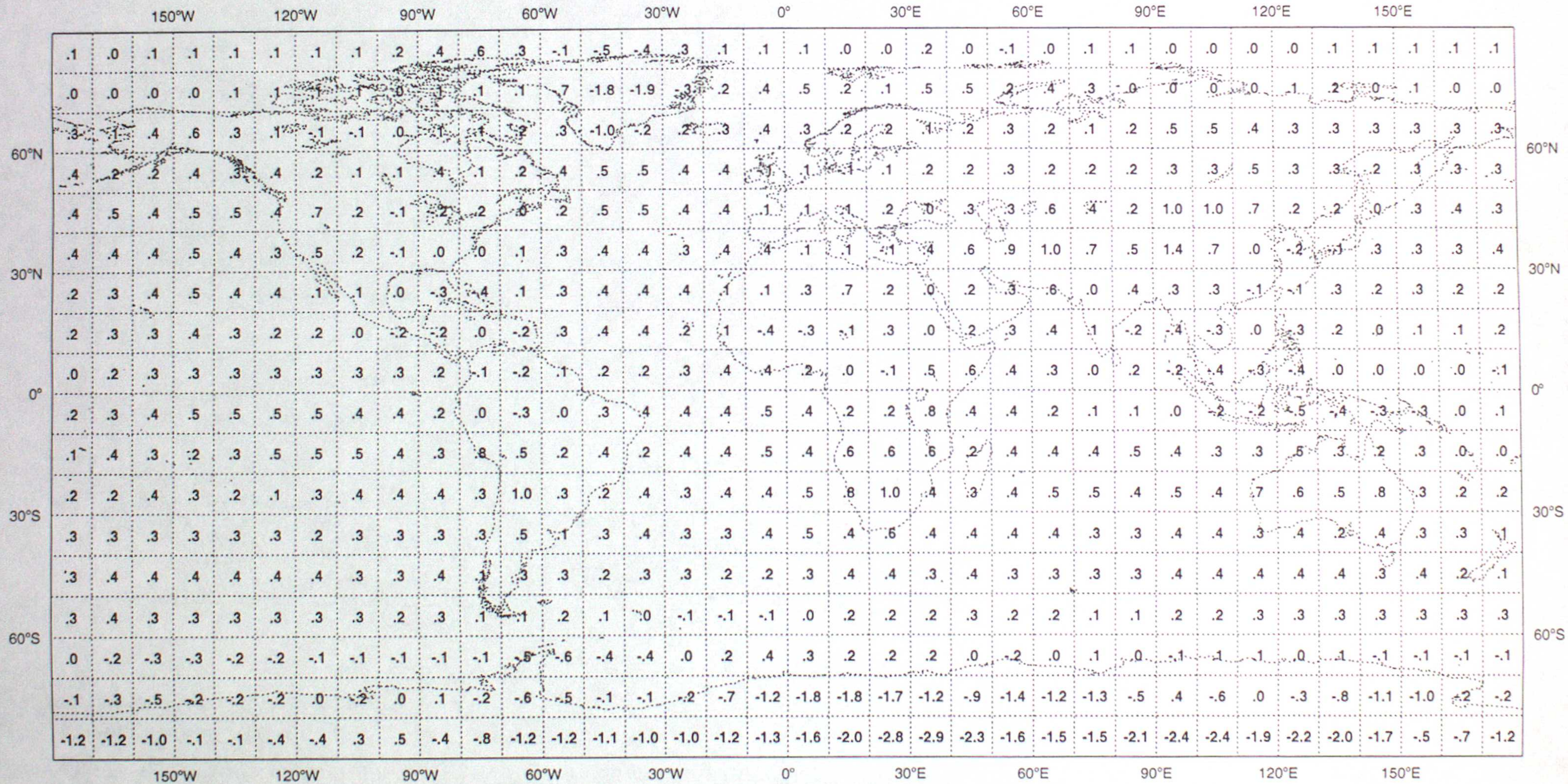
Channel: HIRS15 (700 hPa)

NOAA16, using all observations



-1.5	-1.5	-1.5	-1.3	-1.4	-1.4	-1.3	-1.2	-1.3	-1.0	-.3	-.7	-.8	-.5	-.7	-.6	-1.0	-1.1	-1.0	-1.0	-.9	-.9	-1.0	-1.2	-1.3	-1.2	-1.0	-1.0	-1.2	-1.4	-1.3	-1.0	-.7	-1.1	-1.3	-1.3
-2.0	-1.7	-1.6	-1.6	-1.6	-1.3	-1.6	-1.6	-1.5	-1.2	-1.5	-1.4	-.9	-.4	-.1	-.5	-1.3	-1.6	-1.9	-1.7	-1.5	-1.7	-1.6	-1.6	-1.2	-1.1	-1.1	-1.5	-1.7	-1.4	-1.5	-1.5	-1.5	-1.6	-1.6	-1.8
-2.7	-3.3	-4.4	-3.3	-3.2	-3.5	-3.0	-2.4	-1.9	-1.4	-2.2	-2.8	-2.4	-2.3	-1.9	-2.2	-2.7	-2.9	-3.8	-3.7	-2.6	-2.3	-2.5	-3.0	-3.2	-2.8	-3.2	-2.8	-2.7	-2.6	-2.6	-2.9	-3.3	-2.9	-2.6	-3.0
-3.4	-2.8	-3.1	-2.9	-3.3	-4.0	-3.2	-2.8	-3.0	-2.5	-3.0	-3.2	-2.8	-3.2	-2.9	-3.3	-2.8	-3.7	-3.5	-3.4	-2.8	-2.6	-2.7	-3.6	-3.8	-3.8	-3.3	-3.5	-3.2	-3.5	-3.1	-3.6	-3.3	-2.7	-3.2	-3.3
-3.3	-2.7	-3.1	-2.8	-2.0	-1.1	-1.4	-2.7	-2.9	-3.1	-3.0	-3.9	-3.8	-3.1	-2.8	-2.4	-2.5	-2.7	-2.1	-1.1	-1.1	-1.4	-1.6	-1.3	-.9	-2.3	-3.7	-2.0	-2.4	-2.1	-2.5	-2.7	-2.8	-3.6	-3.3	-4.5
-2.1	-1.0	-1.0	-.7	-.4	.1	-1.0	-3.8	-4.3	-3.1	-3.5	-3.3	-2.1	-1.1	-.6	-.6	.1	-.7	-.2	.3	.3	.6	.5	.9	1.1	-1.2	-1.9	-1.1	-2.3	-3.4	-2.4	-2.0	-1.8	-4.2	-4.6	-2.5
-4.3	-2.2	-.8	-.8	-1.0	-.2	-1.0	-4.4	-3.7	-3.1	-3.3	-3.3	-1.1	-.1	.0	.0	-.5	-1.6	.3	1.5	.6	-.9	-1.2	.6	.6	-1.2	-3.8	-4.3	-2.1	-1.8	-1.5	-.9	-2.7	-2.8	-4.8	-4.6
-5.2	-3.4	-1.5	-2.9	-4.2	-4.5	-5.1	-6.6	-6.0	-6.1	-2.0	-2.6	-2.9	-1.6	-1.5	-2.7	-4.2	-5.4	-5.9	-4.4	-3.3	-6.2	-3.0	-.5	-2.1	-5.6	-9.3	-7.1	-5.1	-6.2	-6.7	-5.5	-9.5	-7.2	-5.7	-5.6
-5.9	-4.8	-3.9	-4.3	-2.7	-2.6	-3.6	-4.0	-3.7	-4.5	-7.2	-6.9	-3.3	-3.7	-4.3	-3.0	-2.9	-1.7	-3.9	-6.9	-9.1	-5.2	-1.0	-2.0	-4.9	-6.1	-7.2	-9.8	-9.2	-8.4	-7.1	-6.7	-6.8	-7.5	-6.5	-7.9
-3.6	-2.4	-1.0	-.1	.1	.0	-.1	-.2	-.4	-.6	-3.4	-4.2	-2.0	-.4	-.2	-.4	-.1	.0	-.3	-1.5	-3.7	-.6	-.6	-3.2	-6.0	-7.1	-8.1	-7.2	-4.8	-2.4	-2.0	-3.8	-4.3	-5.2	-4.8	-3.6
-3.1	-1.3	-.8	-.6	-1.0	-.4	-.2	-.3	-.6	-.5	-.1	-1.4	-1.7	-1.6	-1.0	-.7	-.6	-.6	-.5	.2	.2	.3	-.1	-.5	-.7	-.9	-1.5	-1.5	-1.0	-.2	.5	-.1	-.7	-1.6	-2.9	-3.8
-6.2	-4.6	-2.9	-2.9	-4.7	-5.9	-4.7	-2.4	-1.2	-.9	-.6	-.2	-3.6	-2.8	-1.0	-1.4	-1.0	-.7	-.6	.7	-.2	-.5	-.5	-.6	-.4	-.7	-.7	-.6	-1.0	.3	.3	.1	.7	-.3	-2.3	-3.9
-2.6	-4.2	-4.9	-4.5	-4.8	-6.2	-7.7	-5.5	-4.2	-4.1	-2.7	-3.5	-4.7	-3.9	-2.7	-2.5	-2.2	-1.3	-.9	-1.2	-1.7	-2.7	-2.5	-3.0	-2.1	-1.7	-1.4	-1.3	-1.3	-1.4	-1.4	-2.3	-2.0	-2.3	-2.6	-2.4
-3.2	-2.8	-3.4	-2.7	-2.2	-2.2	-3.1	-3.5	-3.4	-4.1	-4.5	-4.9	-6.0	-6.1	-5.5	-4.4	-3.5	-3.5	-3.0	-3.5	-4.1	-4.4	-3.9	-3.7	-3.7	-3.6	-3.6	-3.5	-3.3	-3.3	-3.6	-3.8	-3.5	-3.2	-3.8	-3.3
-3.0	-3.2	-3.0	-2.6	-2.7	-3.0	-3.5	-3.6	-3.6	-3.6	-4.5	-4.2	-4.6	-4.9	-5.3	-4.8	-4.2	-4.3	-4.1	-4.8	-4.6	-4.4	-4.7	-5.0	-4.9	-4.8	-4.8	-4.6	-4.3	-4.1	-4.6	-4.6	-4.1	-4.1	-4.2	-3.7
-4.4	-3.8	-3.4	-3.7	-3.4	-3.6	-3.8	-4.4	-4.8	-4.8	-5.0	-5.7	-6.4	-5.2	-5.3	-4.4	-3.3	-3.2	-2.8	-2.4	-2.7	-3.0	-3.2	-2.6	-2.6	-3.0	-2.9	-2.5	-2.9	-3.4	-3.9	-3.5	-4.1	-4.5	-4.7	-4.7
-2.8	-3.0	-2.9	-2.6	-2.4	-2.2	-2.3	-2.8	-2.7	-3.0	-4.1	-5.3	-6.0	-5.2	-4.6	-3.6	-2.8	-1.5	-.6	.1	.2	.7	.8	.6	.3	.2	.6	.9	.8	.6	.6	.3	-.1	-.3	-1.7	-2.6
-.8	-1.0	-1.4	-1.0	-.9	-1.1	-1.2	-.6	-.5	-1.7	-2.3	-2.8	-3.0	-3.1	-2.4	-1.8	-1.3	-.6	.0	.4	.5	.8	1.0	1.3	1.3	1.4	1.2	1.2	1.3	1.4	1.3	1.3	1.0	1.1	-.1	-.9

Figure 45. ATOVS MEAN O-B brightness temperature differences (deg C). AUGUST 2001
Channel: HIRS11 (500 - 700 hPa)
NOAA16, using all observations


150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
.1 .0 .1 .1 .1 .1 .1 .1 .2 .4 .6 .3 -.1 -.5 -.4 .3 .1 .1 .1 .0 .0 .2 .0 -.1 .0 .1 .1 .0 .0 .0 .0 .1 .1 .1 .1 .1
.0 .0 .0 .0 .1 .1 .1 .1 .0 .1 .1 .1 .7 -1.8 -1.9 -.3 .2 .4 .5 .2 .1 .5 .5 .2 .4 .3 .0 .0 .0 .0 .1 .2 .0 .1 .0 .0
.3 .1 .4 .6 .3 .1 -.1 -.1 .0 .1 .1 .2 .3 -1.0 -.2 .2 .3 .4 .3 .2 .2 .1 .2 .3 .2 .1 .2 .5 .5 .4 .3 .3 .3 .3 .3 .3
.4 .2 .2 .4 .3 .4 .2 .1 .1 .4 .1 .2 .4 .5 .5 .4 .4 .1 .1 -.1 .1 .2 .2 .3 .2 .2 .2 .3 .3 .5 .3 .3 .2 .3 .3 .3
.4 .5 .4 .5 .5 .4 .7 .2 -.1 -.2 .2 .0 .2 .5 .5 .4 .4 .1 .1 .1 .2 .0 .3 .3 .6 .4 .2 1.0 1.0 .7 .2 .2 .0 .3 .4 .3
.4 .4 .4 .5 .4 .3 .5 .2 -.1 .0 .0 .1 .3 .4 .4 .3 .4 .4 .1 .1 -.1 .4 .6 .9 1.0 .7 .5 1.4 .7 .0 -.2 -.1 .3 .3 .3 .4
.2 .3 .4 .5 .4 .4 .1 .1 .0 -.3 -.4 .1 .3 .4 .4 .4 .1 .1 .3 .7 .2 .0 .2 .3 .6 .0 .4 .3 .3 -.1 -.1 .3 .2 .3 .2 .2
.2 .3 .3 .4 .3 .2 .2 .0 -.2 -.2 .0 -.2 .3 .4 .4 .2 .1 -.4 -.3 -.1 .3 .0 .2 .3 .4 .1 -.2 -.4 -.3 .0 -.3 .2 .0 .1 .1 .2
.0 .2 .3 .3 .3 .3 .3 .3 .3 .2 -.1 -.2 .1 .2 .2 .3 .4 .4 .2 .0 -.1 .5 .6 .4 .3 .0 .2 -.2 -.4 -.3 -.4 .0 .0 .0 .0 -.1
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.1 .4 .3 .2 .3 .5 .5 .5 .4 .3 .8 .5 .2 .4 .2 .4 .4 .5 .4 .6 .6 .6 .2 .4 .4 .4 .5 .4 .3 .3 .5 .3 .2 .3 .0 .0
.2 .2 .4 .3 .2 .1 .3 .4 .4 .4 .3 1.0 .3 .2 .4 .3 .4 .4 .5 .8 1.0 .4 .3 .4 .5 .5 .4 .5 .4 .7 .6 .5 .8 .3 .2 .2
.3 .3 .3 .3 .3 .3 .2 .3 .3 .3 .3 .5 .1 .3 .4 .3 .3 .4 .5 .4 .6 .4 .4 .4 .4 .3 .3 .4 .4 .3 .4 .2 .4 .3 .3 .1
.3 .4 .4 .4 .4 .4 .4 .3 .3 .4 .1 .3 .3 .2 .3 .3 .2 .2 .3 .4 .4 .3 .4 .3 .3 .3 .3 .4 .4 .4 .4 .4 .3 .4 .2 .1
.3 .4 .3 .3 .3 .3 .3 .3 .2 .3 .1 .1 .2 .1 .0 -.1 -.1 -.1 .0 .2 .2 .2 .3 .2 .2 .1 .1 .2 .2 .3 .3 .3 .3 .3 .3 .3
.0 -.2 -.3 -.3 -.2 -.2 -.1 -.1 -.1 -.1 -.1 .5 -.6 -.4 -.4 .0 .2 .4 .3 .2 .2 .2 .0 -.2 .0 .1 .0 -.1 -.1 -.1 .0 .1 -.1 -.1 -.1 -.1
-.1 -.3 -.5 -.2 -.2 -.2 .0 -.2 .0 .1 -.2 -.6 -.5 -.1 -.1 -.2 -.7 -1.2 -1.8 -1.8 -1.7 -1.2 -.9 -1.4 -1.2 -1.3 -.5 .4 -.6 .0 -.3 -.8 -1.1 -1.0 -.2 -.2
-1.2 -1.2 -1.0 -.1 -.1 -.4 -.4 .3 .5 -.4 -.8 -1.2 -1.2 -1.1 -1.0 -1.0 -1.2 -1.3 -1.6 -2.0 -2.8 -2.9 -2.3 -1.6 -1.5 -1.5 -2.1 -2.4 -2.4 -1.9 -2.2 -2.0 -1.7 -.5 -.7 -1.2

Figure 46. ATOVS SD O-B brightness temperature differences (deg C). AUGUST 2001
Channel: HIRS11 (500 - 700 hPa)
NOAA16, using all observations

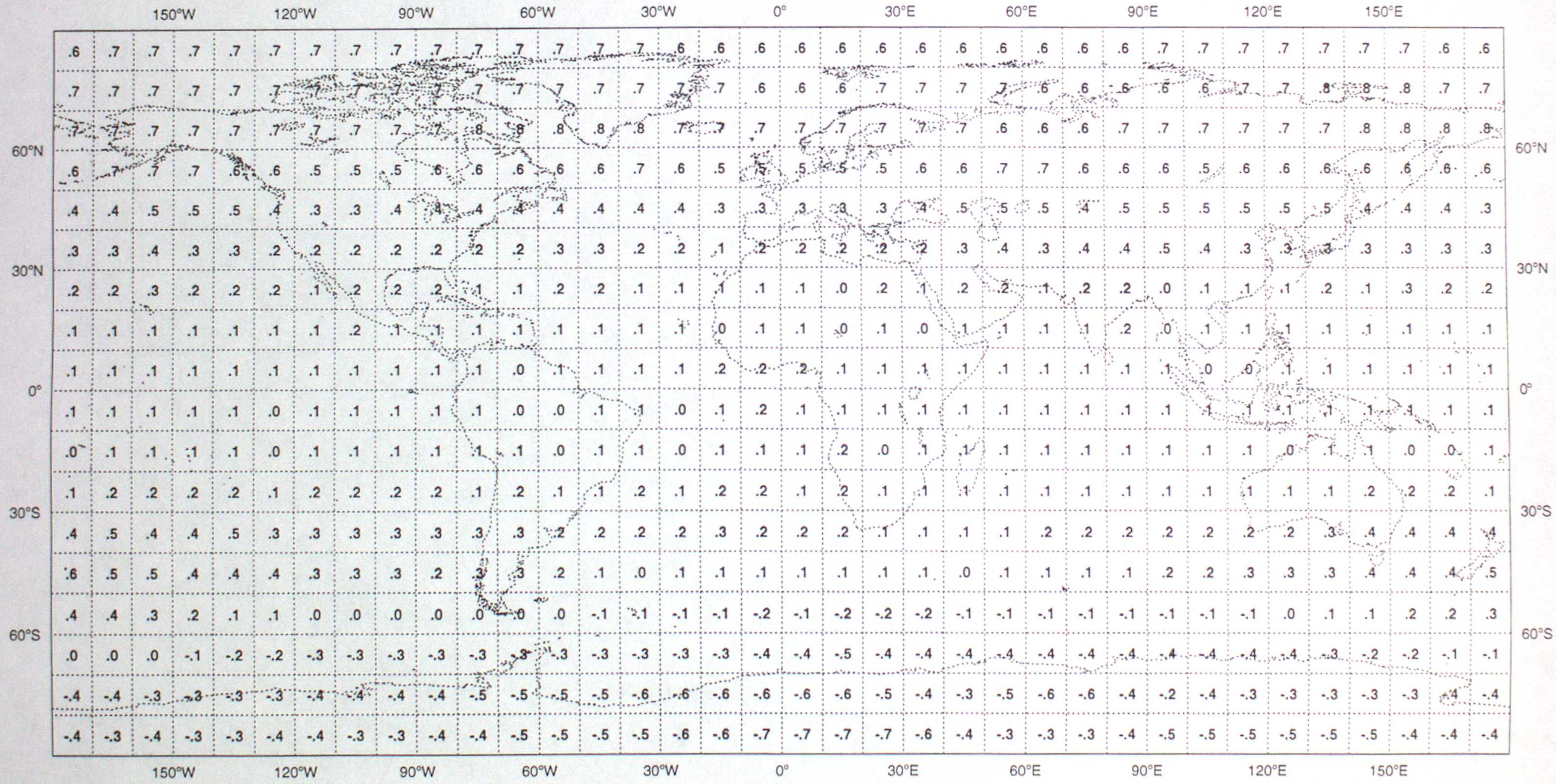
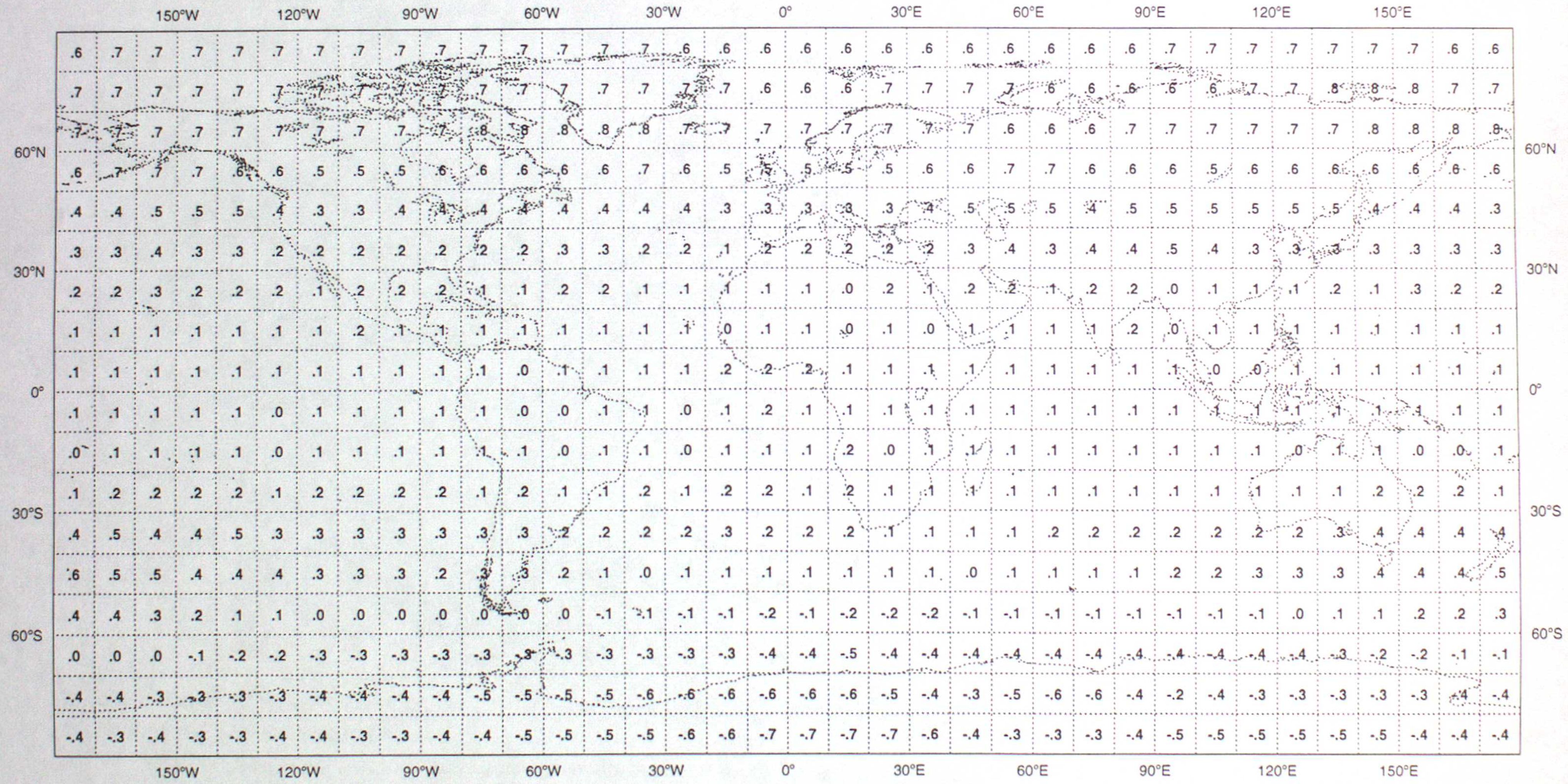
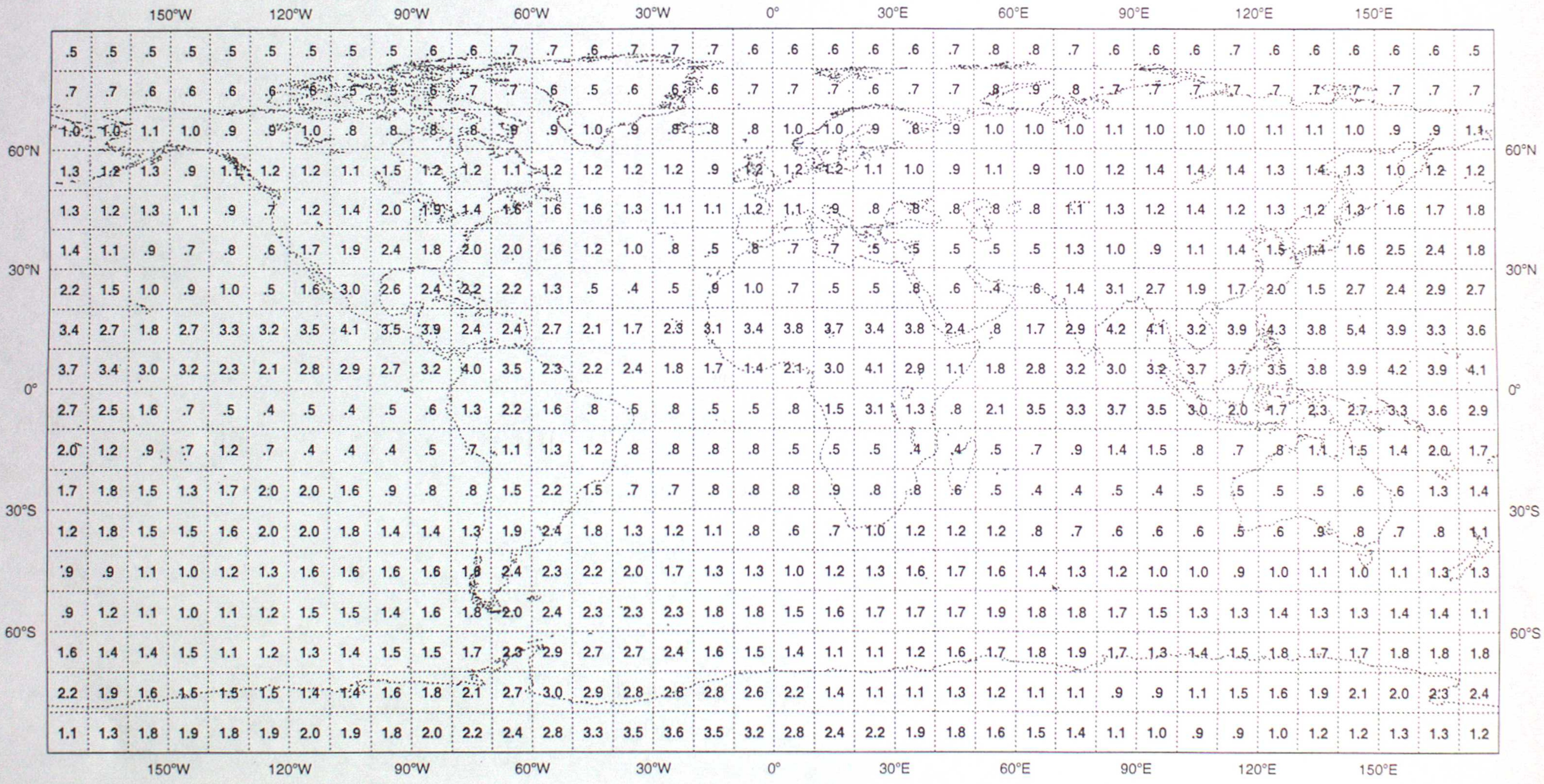

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N
30°N
0°
30°S
60°S
.6 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .7 .7 .7 .7 .7 .7 .7 .6 .6
.7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .6 .6 .6 .7 .7 .7 .7 .6 .6 .6 .6 .6 .7 .7 .8 .8 .8 .7 .7
.7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .8 .8 .8 .8 .8 .7 .7 .7 .7 .7 .7 .7 .7 .6 .6 .6 .7 .7 .7 .7 .7 .7 .8 .8 .8 .8
.6 .7 .7 .7 .6 .6 .5 .5 .5 .6 .6 .6 .6 .6 .7 .6 .5 .5 .5 .5 .5 .6 .6 .7 .7 .6 .6 .6 .5 .6 .6 .6 .6 .6 .6 .6
.4 .4 .5 .5 .5 .4 .3 .3 .4 .4 .4 .4 .4 .4 .4 .4 .3 .3 .3 .3 .3 .4 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .4 .4 .4 .3
.3 .3 .4 .3 .3 .2 .2 .2 .2 .2 .2 .2 .3 .3 .2 .2 .1 .2 .2 .2 .2 .2 .3 .4 .3 .4 .4 .5 .4 .3 .3 .3 .3 .3 .3 .3
.2 .2 .3 .2 .2 .2 .1 .2 .2 .2 .1 .1 .2 .2 .1 .1 .1 .1 .1 .0 .2 .1 .2 .2 .1 .2 .2 .0 .1 .1 .1 .2 .1 .3 .2 .2
.1 .1 .1 .1 .1 .1 .1 .2 .1 .1 .1 .1 .1 .1 .1 .1 .0 .1 .1 .0 .1 .0 .1 .1 .1 .1 .2 .0 .1 .1 .1 .1 .1 .1 .1 .1
.1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .0 .1 .1 .1 .1 .2 .2 .2 .1 .1 .1 .1 .1 .1 .1 .1 .1 .0 .0 .1 .1 .1 .1 .1 .1
.1 .1 .1 .1 .1 .0 .1 .1 .1 .1 .1 .0 .0 .1 .1 .0 .1 .2 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1
.0 .1 .1 .1 .1 .0 .1 .1 .1 .1 .1 .1 .0 .1 .1 .0 .1 .1 .1 .2 .0 .1 .1 .1 .1 .1 .1 .1 .1 .1 .0 .1 .1 .0 .0 .1
.1 .2 .2 .2 .2 .1 .2 .2 .2 .2 .1 .2 .1 .1 .2 .1 .2 .2 .1 .2 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .2 .2 .2 .1
.4 .5 .4 .4 .5 .3 .3 .3 .3 .3 .3 .3 .2 .2 .2 .2 .3 .2 .2 .2 .1 .1 .1 .1 .2 .2 .2 .2 .2 .2 .2 .3 .4 .4 .4 .4
.6 .5 .5 .4 .4 .4 .3 .3 .3 .2 .3 .3 .2 .1 .0 .1 .1 .1 .1 .1 .1 .1 .0 .1 .1 .1 .1 .2 .2 .3 .3 .3 .4 .4 .4 .5
.4 .4 .3 .2 .1 .1 .0 .0 .0 .0 .0 .0 .0 -.1 -.1 -.1 -.1 -.2 -.1 -.2 -.2 -.2 -.1 -.1 -.1 -.1 -.1 -.1 -.1 -.1 .0 .1 .1 .2 .2 .3
.0 .0 .0 -.1 -.2 -.2 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.4 -.4 -.5 -.4 -.4 -.4 -.4 -.4 -.4 -.4 -.4 -.4 -.4 -.4 -.3 -.2 -.2 -.1 -.1
-.4 -.4 -.3 -.3 -.3 -.3 -.4 -.4 -.4 -.4 -.5 -.5 -.5 -.5 -.6 -.6 -.6 -.6 -.6 -.6 -.5 -.4 -.3 -.5 -.6 -.6 -.4 -.2 -.4 -.3 -.3 -.3 -.3 -.3 -.4 -.4
-.4 -.3 -.4 -.3 -.3 -.4 -.4 -.3 -.3 -.4 -.4 -.5 -.5 -.5 -.5 -.6 -.6 -.7 -.7 -.7 -.7 -.6 -.4 -.3 -.3 -.3 -.4 -.5 -.5 -.5 -.5 -.5 -.5 -.4 -.4 -.4

Figure 47. ATOVS MEAN O-B brightness temperature differences (deg C). AUGUST 2001
Channel: HIRS4 (400 hPa)
NOAA16, using all observations



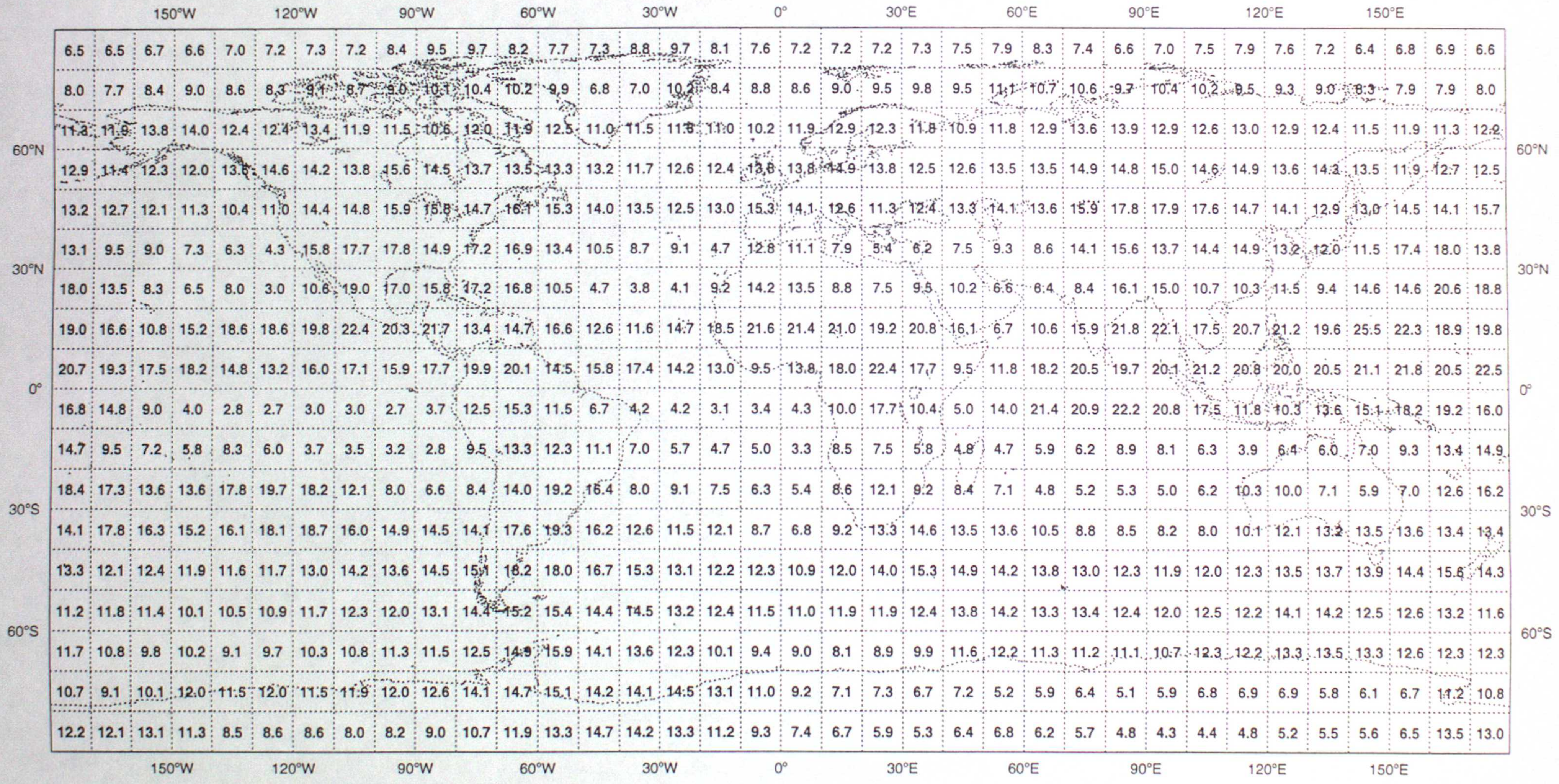
.6	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.7	.7	.7	.7	.7	.7	.7	.6	.6
.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.6	.6	.6	.7	.7	.7	.7	.6	.6	.6	.6	.6	.7	.7	.8	.8	.8	.7	.7
.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.8	.8	.8	.8	.8	.7	.7	.7	.7	.7	.7	.7	.7	.6	.6	.6	.7	.7	.7	.7	.7	.7	.8	.8	.8	.8
.6	.7	.7	.7	.6	.6	.5	.5	.5	.6	.6	.6	.6	.6	.7	.6	.5	.5	.5	.5	.5	.6	.6	.7	.7	.6	.6	.6	.5	.6	.6	.6	.6	.6	.6	.6
.4	.4	.5	.5	.5	.4	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.4	.5	.5	.5	.4	.5	.5	.5	.5	.5	.5	.4	.4	.4	.3
.3	.3	.4	.3	.3	.2	.2	.2	.2	.2	.2	.2	.3	.3	.2	.2	.1	.2	.2	.2	.2	.2	.3	.4	.3	.4	.4	.5	.4	.3	.3	.3	.3	.3	.3	.3
.2	.2	.3	.2	.2	.2	.1	.2	.2	.2	.1	.1	.2	.2	.1	.1	.1	.1	.1	.0	.2	.1	.2	.2	.1	.2	.2	.0	.1	.1	.1	.2	.1	.3	.2	.2
.1	.1	.1	.1	.1	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.0	.1	.1	.0	.1	.0	.1	.1	.1	.1	.2	.0	.1	.1	.1	.1	.1	.1	.1	.1
.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.1	.1	.1	.1	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.1	.1	.1	.1	.1	.1
.1	.1	.1	.1	.1	.0	.1	.1	.1	.1	.1	.0	.0	.1	.1	.0	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
.0	.1	.1	.1	.1	.0	.1	.1	.1	.1	.1	.1	.0	.1	.1	.0	.1	.1	.1	.2	.0	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.1	.1	.0	.0	.1
.1	.2	.2	.2	.2	.1	.2	.2	.2	.2	.1	.2	.1	.1	.2	.1	.2	.2	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.2	.2	.1
.4	.5	.4	.4	.5	.3	.3	.3	.3	.3	.3	.3	.2	.2	.2	.2	.3	.2	.2	.2	.1	.1	.1	.1	.2	.2	.2	.2	.2	.2	.2	.3	.4	.4	.4	.4
.6	.5	.5	.4	.4	.4	.3	.3	.3	.2	.3	.3	.2	.1	.0	.1	.1	.1	.1	.1	.1	.1	.0	.1	.1	.1	.1	.2	.2	.3	.3	.3	.4	.4	.4	.5
.4	.4	.3	.2	.1	.1	.0	.0	.0	.0	.0	.0	.0	-.1	-.1	-.1	-.1	-.2	-.1	-.2	-.2	-.2	-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.1	.0	.1	.1	.2	.2	.3
.0	.0	.0	-.1	-.2	-.2	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.4	-.4	-.5	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.3	-.2	-.2	-.1	-.1
-.4	-.4	-.3	-.3	-.3	-.3	-.4	-.4	-.4	-.4	-.5	-.5	-.5	-.5	-.6	-.6	-.6	-.6	-.6	-.6	-.5	-.4	-.3	-.5	-.6	-.6	-.4	-.2	-.4	-.3	-.3	-.3	-.3	-.3	-.4	-.4
-.4	-.3	-.4	-.3	-.3	-.4	-.4	-.3	-.3	-.4	-.4	-.5	-.5	-.5	-.5	-.6	-.6	-.7	-.7	-.7	-.7	-.6	-.4	-.3	-.3	-.3	-.4	-.5	-.5	-.5	-.5	-.5	-.5	-.4	-.4	-.4

Figure 48. ATOVS SD O-B brightness temperature differences (deg C). AUGUST 2001
Channel: HIRS4 (400 hPa)
NOAA16, using all observations



.5	.5	.5	.5	.5	.5	.5	.5	.5	.6	.6	.7	.7	.6	.7	.7	.7	.6	.6	.6	.6	.6	.7	.8	.8	.7	.6	.6	.6	.7	.6	.6	.6	.6	.6	.5
.7	.7	.6	.6	.6	.6	.6	.5	.5	.6	.7	.7	.6	.5	.6	.6	.6	.7	.7	.7	.6	.7	.7	.8	.9	.8	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7
1.0	1.0	1.1	1.0	.9	.9	1.0	.8	.8	.8	.8	.9	.9	1.0	.9	.8	.8	.8	1.0	1.0	.9	.8	.9	1.0	1.0	1.0	1.1	1.0	1.0	1.0	1.1	1.1	1.0	.9	.9	1.1
1.3	1.2	1.3	.9	1.1	1.2	1.2	1.1	1.5	1.2	1.2	1.1	1.2	1.2	1.2	1.2	.9	1.2	1.2	1.2	1.1	1.0	.9	1.1	.9	1.0	1.2	1.4	1.4	1.4	1.3	1.4	1.3	1.0	1.2	1.2
1.3	1.2	1.3	1.1	.9	.7	1.2	1.4	2.0	1.9	1.4	1.6	1.6	1.6	1.3	1.1	1.1	1.2	1.1	.9	.8	.8	.8	.8	.8	1.1	1.3	1.2	1.4	1.2	1.3	1.2	1.3	1.6	1.7	1.8
1.4	1.1	.9	.7	.8	.6	1.7	1.9	2.4	1.8	2.0	2.0	1.6	1.2	1.0	.8	.5	.8	.7	.7	.5	.5	.5	.5	.5	1.3	1.0	.9	1.1	1.4	1.5	1.4	1.6	2.5	2.4	1.8
2.2	1.5	1.0	.9	1.0	.5	1.6	3.0	2.6	2.4	2.2	2.2	1.3	.5	.4	.5	.9	1.0	.7	.5	.5	.8	.6	.4	.6	1.4	3.1	2.7	1.9	1.7	2.0	1.5	2.7	2.4	2.9	2.7
3.4	2.7	1.8	2.7	3.3	3.2	3.5	4.1	3.5	3.9	2.4	2.4	2.7	2.1	1.7	2.3	3.1	3.4	3.8	3.7	3.4	3.8	2.4	.8	1.7	2.9	4.2	4.1	3.2	3.9	4.3	3.8	5,4	3.9	3.3	3.6
3.7	3.4	3.0	3.2	2.3	2.1	2.8	2.9	2.7	3.2	4.0	3.5	2.3	2.2	2.4	1.8	1.7	1.4	2.1	3.0	4.1	2.9	1.1	1.8	2.8	3.2	3.0	3.2	3.7	3.7	3.5	3.8	3.9	4.2	3.9	4.1
2.7	2.5	1.6	.7	.5	.4	.5	.4	.5	.6	1.3	2.2	1.6	.8	.5	.8	.5	.5	.8	1.5	3.1	1.3	.8	2.1	3.5	3.3	3.7	3.5	3.0	2.0	1.7	2.3	2.7	3.3	3.6	2.9
2.0	1.2	.9	.7	1.2	.7	.4	.4	.4	.5	.7	1.1	1.3	1.2	.8	.8	.8	.8	.5	.5	.5	.4	.4	.5	.7	.9	1.4	1.5	.8	.7	.8	1.1	1.5	1.4	2.0	1.7
1.7	1.8	1.5	1.3	1.7	2.0	2.0	1.6	.9	.8	.8	1.5	2.2	1.5	.7	.7	.8	.8	.8	.9	.8	.8	.6	.5	.4	.4	.5	.4	.5	.5	.5	.5	.6	.6	1.3	1.4
1.2	1.8	1.5	1.5	1.6	2.0	2.0	1.8	1.4	1.4	1.3	1.9	2.4	1.8	1.3	1.2	1.1	.8	.6	.7	1.0	1.2	1.2	1.2	.8	.7	.6	.6	.6	.5	.6	.9	.8	.7	.8	1.1
.9	.9	1.1	1.0	1.2	1.3	1.6	1.6	1.6	1.6	1.8	2.4	2.3	2.2	2.0	1.7	1.3	1.3	1.0	1.2	1.3	1.6	1.7	1.6	1.4	1.3	1.2	1.0	1.0	.9	1.0	1.1	1.0	1.1	1.3	1.3
.9	1.2	1.1	1.0	1.1	1.2	1.5	1.5	1.4	1.6	1.8	2.0	2.4	2.3	2.3	2.3	1.8	1.8	1.5	1.6	1.7	1.7	1.7	1.9	1.8	1.8	1.7	1.5	1.3	1.3	1.4	1.3	1.3	1.4	1.4	1.1
1.6	1.4	1.4	1.5	1.1	1.2	1.3	1.4	1.5	1.5	1.7	2.3	2.9	2.7	2.7	2.4	1.6	1.5	1.4	1.1	1.1	1.2	1.6	1.7	1.8	1.9	1.7	1.3	1.4	1.5	1.8	1.7	1.7	1.8	1.8	1.8
2.2	1.9	1.6	1.5	1.5	1.5	1.4	1.4	1.6	1.8	2.1	2.7	3.0	2.9	2.8	2.8	2.8	2.6	2.2	1.4	1.1	1.1	1.3	1.2	1.1	1.1	.9	.9	1.1	1.5	1.6	1.9	2.1	2.0	2.3	2.4
1.1	1.3	1.8	1.9	1.8	1.9	2.0	1.9	1.8	2.0	2.2	2.4	2.8	3.3	3.5	3.6	3.5	3.2	2.8	2.4	2.2	1.9	1.8	1.6	1.5	1.4	1.1	1.0	.9	.9	1.0	1.2	1.2	1.3	1.3	1.2

Figure 49. ATOVS MEAN O-B brightness temperature differences (deg C). AUGUST 2001
Channel: AMSUA-5 (700 hPa)
NOAA16, using all observations

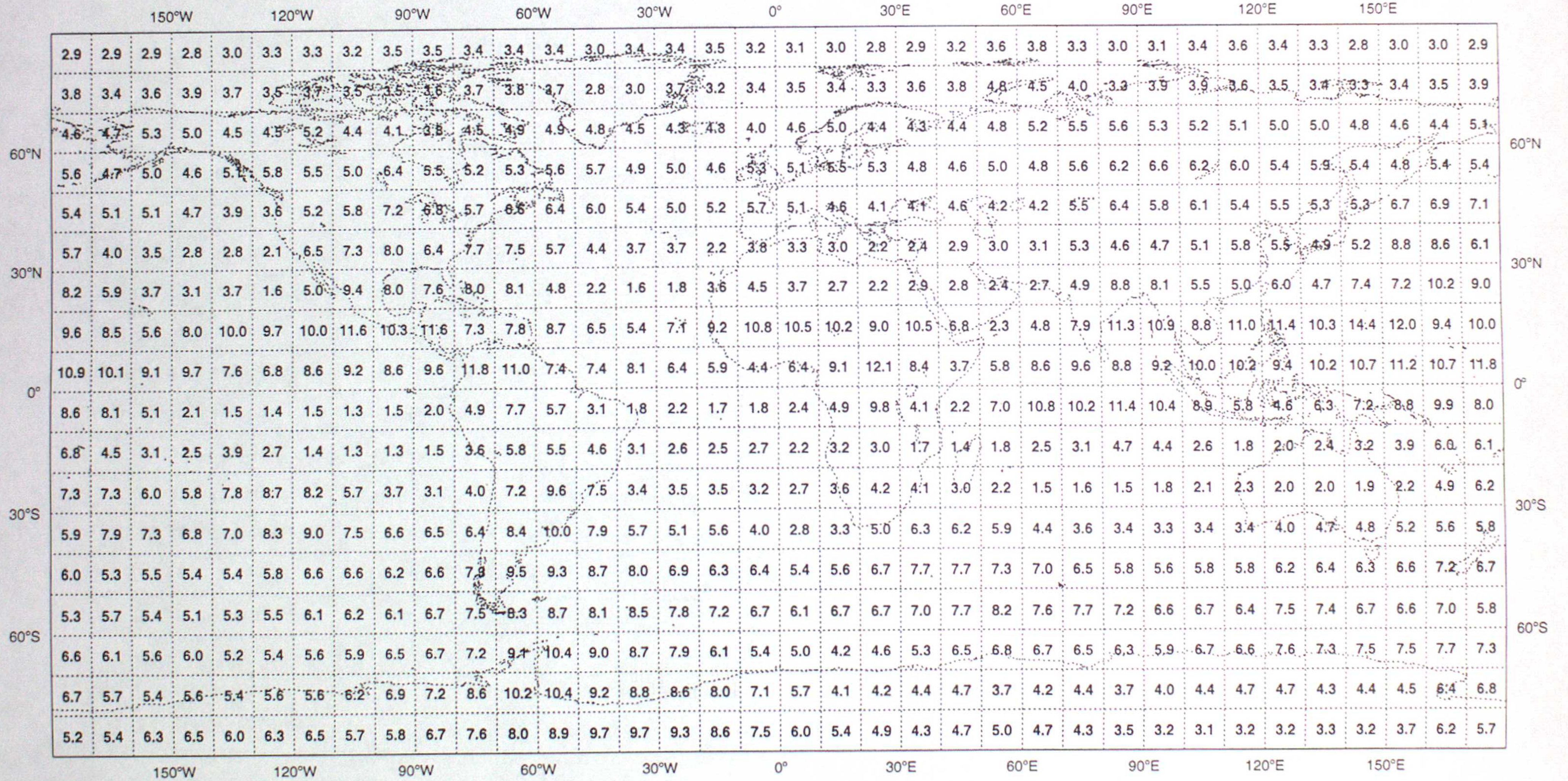


6.5	6.5	6.7	6.6	7.0	7.2	7.3	7.2	8.4	9.5	9.7	8.2	7.7	7.3	8.8	9.7	8.1	7.6	7.2	7.2	7.2	7.3	7.5	7.9	8.3	7.4	6.6	7.0	7.5	7.9	7.6	7.2	6.4	6.8	6.9	6.6
8.0	7.7	8.4	9.0	8.6	8.3	9.1	8.7	9.0	10.1	10.4	10.2	9.9	6.8	7.0	10.2	8.4	8.8	8.6	9.0	9.5	9.8	9.5	11.1	10.7	10.6	9.7	10.4	10.2	9.5	9.3	9.0	8.3	7.9	7.9	8.0
11.3	11.9	13.8	14.0	12.4	12.4	13.4	11.9	11.5	10.6	12.0	11.9	12.5	11.0	11.5	11.8	11.0	10.2	11.9	12.9	12.3	11.8	10.9	11.8	12.9	13.6	13.9	12.9	12.6	13.0	12.9	12.4	11.5	11.9	11.3	12.2
12.9	11.4	12.3	12.0	13.6	14.6	14.2	13.8	15.6	14.5	13.7	13.5	13.3	13.2	11.7	12.6	12.4	13.6	13.8	14.9	13.8	12.5	12.6	13.5	13.5	14.9	14.8	15.0	14.6	14.9	13.6	14.3	13.5	11.9	12.7	12.5
13.2	12.7	12.1	11.3	10.4	11.0	14.4	14.8	15.9	15.8	14.7	16.1	15.3	14.0	13.5	12.5	13.0	15.3	14.1	12.6	11.3	12.4	13.3	14.1	13.6	15.9	17.8	17.9	17.6	14.7	14.1	12.9	13.0	14.5	14.1	15.7
13.1	9.5	9.0	7.3	6.3	4.3	15.8	17.7	17.8	14.9	17.2	16.9	13.4	10.5	8.7	9.1	4.7	12.8	11.1	7.9	5.4	6.2	7.5	9.3	8.6	14.1	15.6	13.7	14.4	14.9	13.2	12.0	11.5	17.4	18.0	13.8
18.0	13.5	8.3	6.5	8.0	3.0	10.6	19.0	17.0	15.8	17.2	16.8	10.5	4.7	3.8	4.1	9.2	14.2	13.5	8.8	7.5	9.5	10.2	6.6	6.4	8.4	16.1	15.0	10.7	10.3	11.5	9.4	14.6	14.6	20.6	18.8
19.0	16.6	10.8	15.2	18.6	18.6	19.8	22.4	20.3	21.7	13.4	14.7	16.6	12.6	11.6	14.7	18.5	21.6	21.4	21.0	19.2	20.8	16.1	6.7	10.6	15.9	21.8	22.1	17.5	20.7	21.2	19.6	25.5	22.3	18.9	19.8
20.7	19.3	17.5	18.2	14.8	13.2	16.0	17.1	15.9	17.7	19.9	20.1	14.5	15.8	17.4	14.2	13.0	9.5	13.8	18.0	22.4	17.7	9.5	11.8	18.2	20.5	19.7	20.1	21.2	20.8	20.0	20.5	21.1	21.8	20.5	22.5
16.8	14.8	9.0	4.0	2.8	2.7	3.0	3.0	2.7	3.7	12.5	15.3	11.5	6.7	4.2	4.2	3.1	3.4	4.3	10.0	17.7	10.4	5.0	14.0	21.4	20.9	22.2	20.8	17.5	11.8	10.3	13.6	15.1	18.2	19.2	16.0
14.7	9.5	7.2	5.8	8.3	6.0	3.7	3.5	3.2	2.8	9.5	13.3	12.3	11.1	7.0	5.7	4.7	5.0	3.3	8.5	7.5	5.8	4.8	4.7	5.9	6.2	8.9	8.1	6.3	3.9	6.4	6.0	7.0	9.3	13.4	14.9
18.4	17.3	13.6	13.6	17.8	19.7	18.2	12.1	8.0	6.6	8.4	14.0	19.2	16.4	8.0	9.1	7.5	6.3	5.4	8.6	12.1	9.2	8.4	7.1	4.8	5.2	5.3	5.0	6.2	10.3	10.0	7.1	5.9	7.0	12.6	16.2
14.1	17.8	16.3	15.2	16.1	18.1	18.7	16.0	14.9	14.5	14.1	17.6	19.3	16.2	12.6	11.5	12.1	8.7	6.8	9.2	13.3	14.6	13.5	13.6	10.5	8.8	8.5	8.2	8.0	10.1	12.1	13.2	13.5	13.6	13.4	13.4
13.3	12.1	12.4	11.9	11.6	11.7	13.0	14.2	13.6	14.5	15.1	18.2	18.0	16.7	15.3	13.1	12.2	12.3	10.9	12.0	14.0	15.3	14.9	14.2	13.8	13.0	12.3	11.9	12.0	12.3	13.5	13.7	13.9	14.4	15.6	14.3
11.2	11.8	11.4	10.1	10.5	10.9	11.7	12.3	12.0	13.1	14.4	15.2	15.4	14.4	14.5	13.2	12.4	11.5	11.0	11.9	11.9	12.4	13.8	14.2	13.3	13.4	12.4	12.0	12.5	12.2	14.1	14.2	12.5	12.6	13.2	11.6
11.7	10.8	9.8	10.2	9.1	9.7	10.3	10.8	11.3	11.5	12.5	14.9	15.9	14.1	13.6	12.3	10.1	9.4	9.0	8.1	8.9	9.9	11.6	12.2	11.3	11.2	11.1	10.7	12.3	12.2	13.3	13.5	13.3	12.6	12.3	12.3
10.7	9.1	10.1	12.0	11.5	12.0	11.5	11.9	12.0	12.6	14.1	14.7	15.1	14.2	14.1	14.5	13.1	11.0	9.2	7.1	7.3	6.7	7.2	5.2	5.9	6.4	5.1	5.9	6.8	6.9	6.9	5.8	6.1	6.7	11.2	10.8
12.2	12.1	13.1	11.3	8.5	8.6	8.6	8.0	8.2	9.0	10.7	11.9	13.3	14.7	14.2	13.3	11.2	9.3	7.4	6.7	5.9	5.3	6.4	6.8	6.2	5.7	4.8	4.3	4.4	4.8	5.2	5.5	5.6	6.5	13.5	13.0

Figure 50. ATOVS SD O-B brightness temperature differences (deg C). AUGUST 2001

Channel: AMSUA-5 (700 hPa)

NOAA16, using all observations

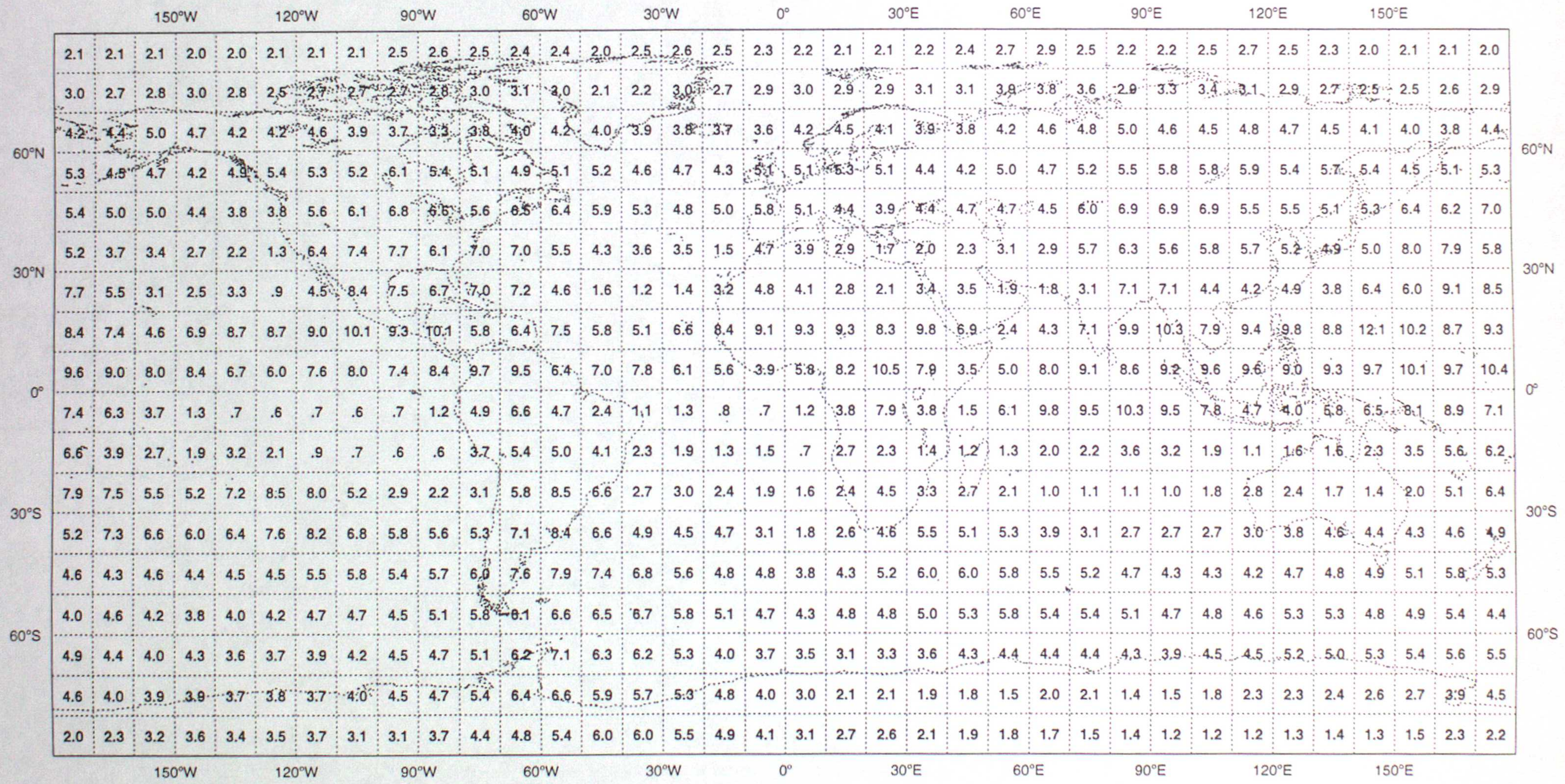


2.9	2.9	2.9	2.8	3.0	3.3	3.3	3.2	3.5	3.5	3.4	3.4	3.4	3.0	3.4	3.4	3.5	3.2	3.1	3.0	2.8	2.9	3.2	3.6	3.8	3.3	3.0	3.1	3.4	3.6	3.4	3.3	2.8	3.0	3.0	2.9
3.8	3.4	3.6	3.9	3.7	3.5	3.7	3.5	3.5	3.6	3.7	3.8	3.7	2.8	3.0	3.7	3.2	3.4	3.5	3.4	3.3	3.6	3.8	4.8	4.5	4.0	3.3	3.9	3.9	3.6	3.5	3.4	3.3	3.4	3.5	3.9
4.6	4.7	5.3	5.0	4.5	4.5	5.2	4.4	4.1	3.8	4.5	4.9	4.9	4.8	4.5	4.3	4.8	4.0	4.6	5.0	4.4	4.3	4.4	4.8	5.2	5.5	5.6	5.3	5.2	5.1	5.0	5.0	4.8	4.6	4.4	5.1
5.6	4.7	5.0	4.6	5.1	5.8	5.5	5.0	6.4	5.5	5.2	5.3	5.6	5.7	4.9	5.0	4.6	5.3	5.1	5.5	5.3	4.8	4.6	5.0	4.8	5.6	6.2	6.6	6.2	6.0	5.4	5.9	5.4	4.8	5.4	5.4
5.4	5.1	5.1	4.7	3.9	3.6	5.2	5.8	7.2	6.8	5.7	6.6	6.4	6.0	5.4	5.0	5.2	5.7	5.1	4.6	4.1	4.1	4.6	4.2	4.2	5.5	6.4	5.8	6.1	5.4	5.5	5.3	5.3	6.7	6.9	7.1
5.7	4.0	3.5	2.8	2.8	2.1	6.5	7.3	8.0	6.4	7.7	7.5	5.7	4.4	3.7	3.7	2.2	3.8	3.3	3.0	2.2	2.4	2.9	3.0	3.1	5.3	4.6	4.7	5.1	5.8	5.5	4.9	5.2	8.8	8.6	6.1
8.2	5.9	3.7	3.1	3.7	1.6	5.0	9.4	8.0	7.6	8.0	8.1	4.8	2.2	1.6	1.8	3.6	4.5	3.7	2.7	2.2	2.9	2.8	2.4	2.7	4.9	8.8	8.1	5.5	5.0	6.0	4.7	7.4	7.2	10.2	9.0
9.6	8.5	5.6	8.0	10.0	9.7	10.0	11.6	10.3	11.6	7.3	7.8	8.7	6.5	5.4	7.1	9.2	10.8	10.5	10.2	9.0	10.5	6.8	2.3	4.8	7.9	11.3	10.9	8.8	11.0	11.4	10.3	14.4	12.0	9.4	10.0
10.9	10.1	9.1	9.7	7.6	6.8	8.6	9.2	8.6	9.6	11.8	11.0	7.4	7.4	8.1	6.4	5.9	4.4	6.4	9.1	12.1	8.4	3.7	5.8	8.6	9.6	8.8	9.2	10.0	10.2	9.4	10.2	10.7	11.2	10.7	11.8
8.6	8.1	5.1	2.1	1.5	1.4	1.5	1.3	1.5	2.0	4.9	7.7	5.7	3.1	1.8	2.2	1.7	1.8	2.4	4.9	9.8	4.1	2.2	7.0	10.8	10.2	11.4	10.4	8.9	5.8	4.6	6.3	7.2	8.8	9.9	8.0
6.8	4.5	3.1	2.5	3.9	2.7	1.4	1.3	1.3	1.5	3.6	5.8	5.5	4.6	3.1	2.6	2.5	2.7	2.2	3.2	3.0	1.7	1.4	1.8	2.5	3.1	4.7	4.4	2.6	1.8	2.0	2.4	3.2	3.9	6.0	6.1
7.3	7.3	6.0	5.8	7.8	8.7	8.2	5.7	3.7	3.1	4.0	7.2	9.6	7.5	3.4	3.5	3.5	3.2	2.7	3.6	4.2	4.1	3.0	2.2	1.5	1.6	1.5	1.8	2.1	2.3	2.0	2.0	1.9	2.2	4.9	6.2
5.9	7.9	7.3	6.8	7.0	8.3	9.0	7.5	6.6	6.5	6.4	8.4	10.0	7.9	5.7	5.1	5.6	4.0	2.8	3.3	5.0	6.3	6.2	5.9	4.4	3.6	3.4	3.3	3.4	3.4	4.0	4.7	4.8	5.2	5.6	5.8
6.0	5.3	5.5	5.4	5.4	5.8	6.6	6.6	6.2	6.6	7.8	9.5	9.3	8.7	8.0	6.9	6.3	6.4	5.4	5.6	6.7	7.7	7.7	7.3	7.0	6.5	5.8	5.6	5.8	5.8	6.2	6.4	6.3	6.6	7.2	6.7
5.3	5.7	5.4	5.1	5.3	5.5	6.1	6.2	6.1	6.7	7.5	8.3	8.7	8.1	8.5	7.8	7.2	6.7	6.1	6.7	6.7	7.0	7.7	8.2	7.6	7.7	7.2	6.6	6.7	6.4	7.5	7.4	6.7	6.6	7.0	5.8
6.6	6.1	5.6	6.0	5.2	5.4	5.6	5.9	6.5	6.7	7.2	9.1	10.4	9.0	8.7	7.9	6.1	5.4	5.0	4.2	4.6	5.3	6.5	6.8	6.7	6.5	6.3	5.9	6.7	6.6	7.6	7.3	7.5	7.5	7.7	7.3
6.7	5.7	5.4	5.6	5.4	5.6	5.6	6.2	6.9	7.2	8.6	10.2	10.4	9.2	8.8	8.6	8.0	7.1	5.7	4.1	4.2	4.4	4.7	3.7	4.2	4.4	3.7	4.0	4.4	4.7	4.7	4.3	4.4	4.5	6.4	6.8
5.2	5.4	6.3	6.5	6.0	6.3	6.5	5.7	5.8	6.7	7.6	8.0	8.9	9.7	9.7	9.3	8.6	7.5	6.0	5.4	4.9	4.3	4.7	5.0	4.7	4.3	3.5	3.2	3.1	3.2	3.2	3.3	3.2	3.7	6.2	5.7

Figure 51. ATOVS MEAN O-B brightness temperature differences (deg C). AUGUST 2001

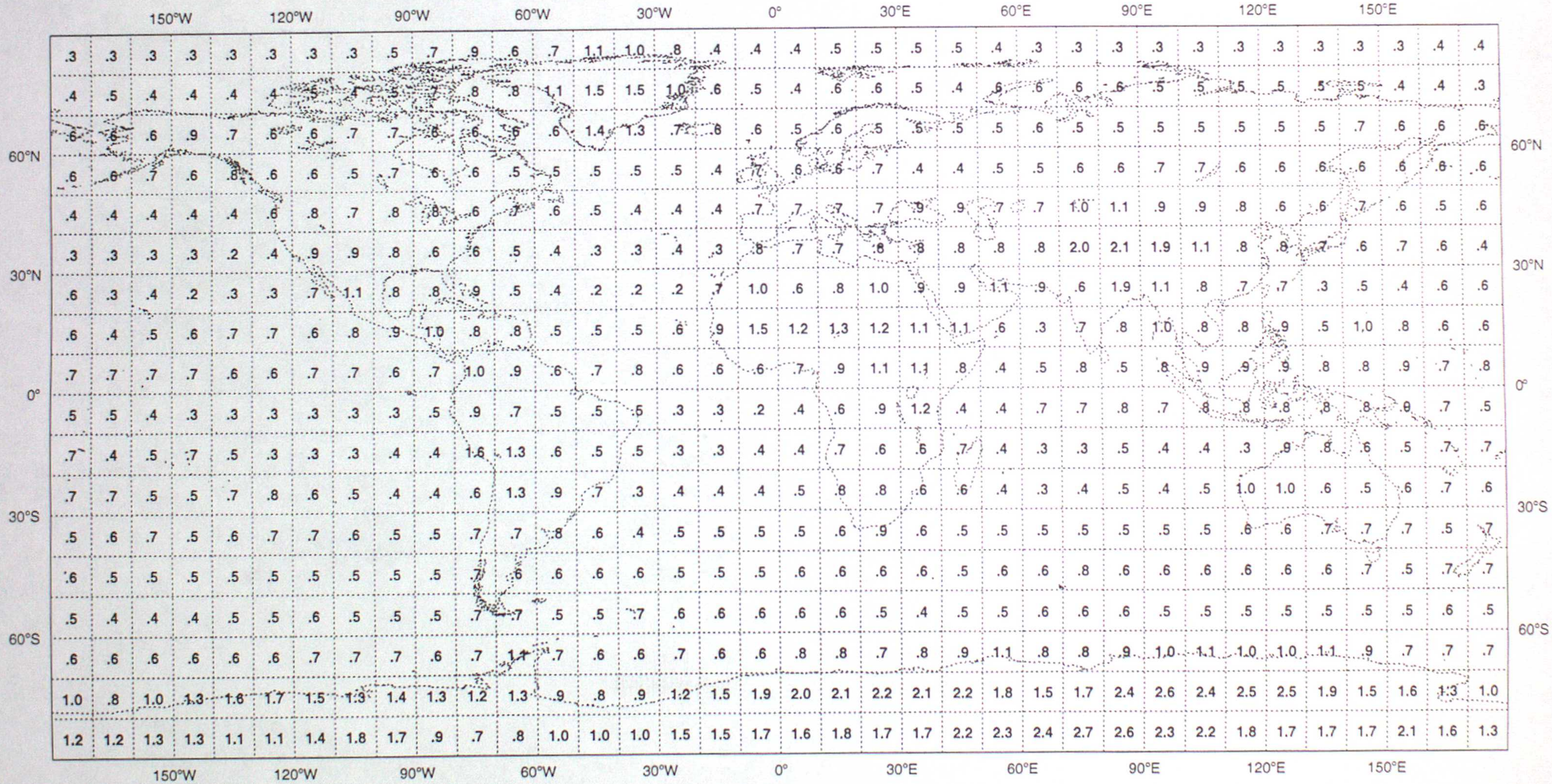
Channel: AMSUA-7 (300 hPa)

NOAA16, using all observations



2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.5	2.6	2.5	2.4	2.4	2.0	2.5	2.6	2.5	2.3	2.2	2.1	2.1	2.2	2.4	2.7	2.9	2.5	2.2	2.2	2.5	2.7	2.5	2.3	2.0	2.1	2.1	2.0
3.0	2.7	2.8	3.0	2.8	2.5	2.7	2.7	2.7	2.8	3.0	3.1	3.0	2.1	2.2	3.0	2.7	2.9	3.0	2.9	2.9	3.1	3.1	3.8	3.8	3.6	2.9	3.3	3.4	3.1	2.9	2.7	2.5	2.5	2.6	2.9
4.2	4.4	5.0	4.7	4.2	4.2	4.6	3.9	3.7	3.3	3.8	4.0	4.2	4.0	3.9	3.8	3.7	3.6	4.2	4.5	4.1	3.9	3.8	4.2	4.6	4.8	5.0	4.6	4.5	4.8	4.7	4.5	4.1	4.0	3.8	4.4
5.3	4.5	4.7	4.2	4.9	5.4	5.3	5.2	6.1	5.4	5.1	4.9	5.1	5.2	4.6	4.7	4.3	5.1	5.1	5.3	5.1	4.4	4.2	5.0	4.7	5.2	5.5	5.8	5.8	5.9	5.4	5.7	5.4	4.5	5.1	5.3
5.4	5.0	5.0	4.4	3.8	3.8	5.6	6.1	6.8	6.6	5.6	6.5	6.4	5.9	5.3	4.8	5.0	5.8	5.1	4.4	3.9	4.4	4.7	4.7	4.5	6.0	6.9	6.9	6.9	5.5	5.5	5.1	5.3	6.4	6.2	7.0
5.2	3.7	3.4	2.7	2.2	1.3	6.4	7.4	7.7	6.1	7.0	7.0	5.5	4.3	3.6	3.5	1.5	4.7	3.9	2.9	1.7	2.0	2.3	3.1	2.9	5.7	6.3	5.6	5.8	5.7	5.2	4.9	5.0	8.0	7.9	5.8
7.7	5.5	3.1	2.5	3.3	.9	4.5	8.4	7.5	6.7	7.0	7.2	4.6	1.6	1.2	1.4	3.2	4.8	4.1	2.8	2.1	3.4	3.5	1.9	1.8	3.1	7.1	7.1	4.4	4.2	4.9	3.8	6.4	6.0	9.1	8.5
8.4	7.4	4.6	6.9	8.7	8.7	9.0	10.1	9.3	10.1	5.8	6.4	7.5	5.8	5.1	6.6	8.4	9.1	9.3	9.3	8.3	9.8	6.9	2.4	4.3	7.1	9.9	10.3	7.9	9.4	9.8	8.8	12.1	10.2	8.7	9.3
9.6	9.0	8.0	8.4	6.7	6.0	7.6	8.0	7.4	8.4	9.7	9.5	6.4	7.0	7.8	6.1	5.6	3.9	5.8	8.2	10.5	7.9	3.5	5.0	8.0	9.1	8.6	9.2	9.6	9.6	9.0	9.3	9.7	10.1	9.7	10.4
7.4	6.3	3.7	1.3	.7	.6	.7	.6	.7	1.2	4.9	6.6	4.7	2.4	1.1	1.3	.8	.7	1.2	3.8	7.9	3.8	1.5	6.1	9.8	9.5	10.3	9.5	7.8	4.7	4.0	5.8	6.5	8.1	8.9	7.1
6.6	3.9	2.7	1.9	3.2	2.1	.9	.7	.6	.6	3.7	5.4	5.0	4.1	2.3	1.9	1.3	1.5	.7	2.7	2.3	1.4	1.2	1.3	2.0	2.2	3.6	3.2	1.9	1.1	1.6	1.6	2.3	3.5	5.6	6.2
7.9	7.5	5.5	5.2	7.2	8.5	8.0	5.2	2.9	2.2	3.1	5.8	8.5	6.6	2.7	3.0	2.4	1.9	1.6	2.4	4.5	3.3	2.7	2.1	1.0	1.1	1.1	1.0	1.8	2.8	2.4	1.7	1.4	2.0	5.1	6.4
5.2	7.3	6.6	6.0	6.4	7.6	8.2	6.8	5.8	5.6	5.3	7.1	8.4	6.6	4.9	4.5	4.7	3.1	1.8	2.6	4.6	5.5	5.1	5.3	3.9	3.1	2.7	2.7	2.7	3.0	3.8	4.6	4.4	4.3	4.6	4.9
4.6	4.3	4.6	4.4	4.5	4.5	5.5	5.8	5.4	5.7	6.0	7.6	7.9	7.4	6.8	5.6	4.8	4.8	3.8	4.3	5.2	6.0	6.0	5.8	5.5	5.2	4.7	4.3	4.3	4.2	4.7	4.8	4.9	5.1	5.8	5.3
4.0	4.6	4.2	3.8	4.0	4.2	4.7	4.7	4.5	5.1	5.8	6.1	6.6	6.5	6.7	5.8	5.1	4.7	4.3	4.8	4.8	5.0	5.3	5.8	5.4	5.4	5.1	4.7	4.8	4.6	5.3	5.3	4.8	4.9	5.4	4.4
4.9	4.4	4.0	4.3	3.6	3.7	3.9	4.2	4.5	4.7	5.1	6.2	7.1	6.3	6.2	5.3	4.0	3.7	3.5	3.1	3.3	3.6	4.3	4.4	4.4	4.4	4.3	3.9	4.5	4.5	5.2	5.0	5.3	5.4	5.6	5.5
4.6	4.0	3.9	3.9	3.7	3.8	3.7	4.0	4.5	4.7	5.4	6.4	6.6	5.9	5.7	5.3	4.8	4.0	3.0	2.1	2.1	1.9	1.8	1.5	2.0	2.1	1.4	1.5	1.8	2.3	2.3	2.4	2.6	2.7	3.9	4.5
2.0	2.3	3.2	3.6	3.4	3.5	3.7	3.1	3.1	3.7	4.4	4.8	5.4	6.0	6.0	5.5	4.9	4.1	3.1	2.7	2.6	2.1	1.9	1.8	1.7	1.5	1.4	1.2	1.2	1.2	1.3	1.4	1.3	1.5	2.3	2.2

Figure 52. ATOVS SD O-B brightness temperature differences (deg C). AUGUST 2001
Channel: AMSUA-7 (300 hPa)
NOAA16, using all observations



.3	.3	.3	.3	.3	.3	.3	.3	.5	.7	.9	.6	.7	1.1	1.0	.8	.4	.4	.4	.5	.5	.5	.5	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4
.4	.5	.4	.4	.4	.4	.5	.4	.5	.7	.8	.8	1.1	1.5	1.5	1.0	.6	.5	.4	.6	.6	.5	.4	.6	.6	.6	.6	.5	.5	.5	.5	.5	.5	.4	.4	.3
.6	.6	.6	.9	.7	.6	.6	.7	.7	.6	.6	.6	.6	1.4	1.3	.7	.8	.6	.5	.6	.5	.5	.5	.5	.6	.5	.5	.5	.5	.5	.5	.5	.7	.6	.6	.6
.6	.6	.7	.6	.8	.6	.6	.5	.7	.6	.6	.5	.5	.5	.5	.5	.4	.7	.6	.6	.7	.4	.4	.5	.5	.6	.6	.7	.7	.6	.6	.6	.6	.6	.6	.6
.4	.4	.4	.4	.4	.6	.8	.7	.8	.8	.6	.7	.6	.5	.4	.4	.4	.7	.7	.7	.7	.9	.9	.7	.7	1.0	1.1	.9	.9	.8	.6	.6	.7	.6	.5	.6
.3	.3	.3	.3	.2	.4	.9	.9	.8	.6	.6	.5	.4	.3	.3	.4	.3	.8	.7	.7	.8	.8	.8	.8	.8	2.0	2.1	1.9	1.1	.8	.8	.7	.6	.7	.6	.4
.6	.3	.4	.2	.3	.3	.7	1.1	.8	.8	.9	.5	.4	.2	.2	.2	.7	1.0	.6	.8	1.0	.9	.9	1.1	.9	.6	1.9	1.1	.8	.7	.7	.3	.5	.4	.6	.6
.6	.4	.5	.6	.7	.7	.6	.8	.9	1.0	.8	.8	.5	.5	.5	.6	.9	1.5	1.2	1.3	1.2	1.1	1.1	.6	.3	.7	.8	1.0	.8	.8	.9	.5	1.0	.8	.6	.6
.7	.7	.7	.7	.6	.6	.7	.7	.6	.7	1.0	.9	.6	.7	.8	.6	.6	.6	.7	.9	1.1	1.1	.8	.4	.5	.8	.5	.8	.9	.9	.9	.8	.8	.9	.7	.8
.5	.5	.4	.3	.3	.3	.3	.3	.3	.5	.9	.7	.5	.5	.5	.3	.3	.2	.4	.6	.9	1.2	.4	.4	.7	.7	.8	.7	.8	.8	.8	.8	.8	.8	.7	.5
.7	.4	.5	.7	.5	.3	.3	.3	.4	.4	1.6	1.3	.6	.5	.5	.3	.3	.4	.4	.7	.6	.6	.7	.4	.3	.3	.5	.4	.4	.3	.9	.8	.6	.5	.7	.7
.7	.7	.5	.5	.7	.8	.6	.5	.4	.4	.6	1.3	.9	.7	.3	.4	.4	.4	.5	.8	.8	.6	.6	.4	.3	.4	.5	.4	.5	1.0	1.0	.6	.5	.6	.7	.6
.5	.6	.7	.5	.6	.7	.7	.6	.5	.5	.7	.7	.8	.6	.4	.5	.5	.5	.5	.6	.9	.6	.5	.5	.5	.5	.5	.5	.5	.6	.6	.7	.7	.7	.5	.7
.6	.5	.5	.5	.5	.5	.5	.5	.5	.5	.7	.6	.6	.6	.6	.5	.5	.5	.6	.6	.6	.6	.5	.6	.6	.8	.6	.6	.6	.6	.6	.6	.7	.5	.7	.7
.5	.4	.4	.4	.5	.5	.6	.5	.5	.5	.7	.7	.5	.5	.7	.6	.6	.6	.6	.6	.5	.4	.5	.5	.6	.6	.6	.5	.5	.5	.5	.5	.5	.5	.6	.5
.6	.6	.6	.6	.6	.6	.7	.7	.7	.6	.7	1.4	.7	.6	.6	.7	.6	.6	.8	.8	.7	.8	.9	1.1	.8	.8	.9	1.0	1.1	1.0	1.0	1.1	.9	.7	.7	.7
1.0	.8	1.0	1.3	1.6	1.7	1.5	1.3	1.4	1.3	1.2	1.3	.9	.8	.9	1.2	1.5	1.9	2.0	2.1	2.2	2.1	2.2	1.8	1.5	1.7	2.4	2.6	2.4	2.5	2.5	1.9	1.5	1.6	1.3	1.0
1.2	1.2	1.3	1.3	1.1	1.1	1.4	1.8	1.7	.9	.7	.8	1.0	1.0	1.0	1.5	1.5	1.7	1.6	1.8	1.7	1.7	2.2	2.3	2.4	2.7	2.6	2.3	2.2	1.8	1.7	1.7	1.7	2.1	1.6	1.3

Figure 53. ATOVS MEAN O-B brightness temperature differences (deg C). AUGUST 2001
Channel: AMSUA-9 (100 hPa)
NOAA16, using all observations

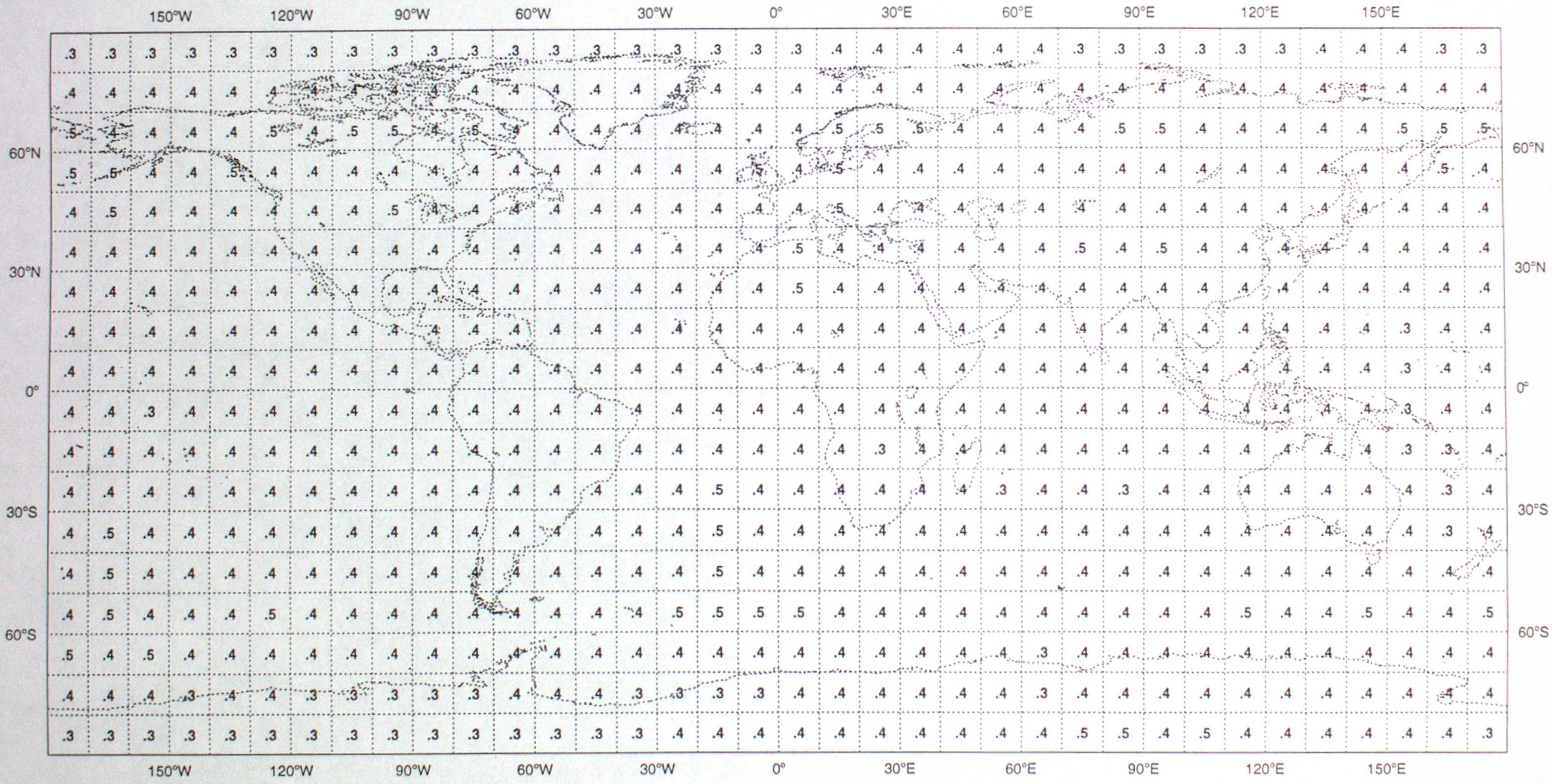
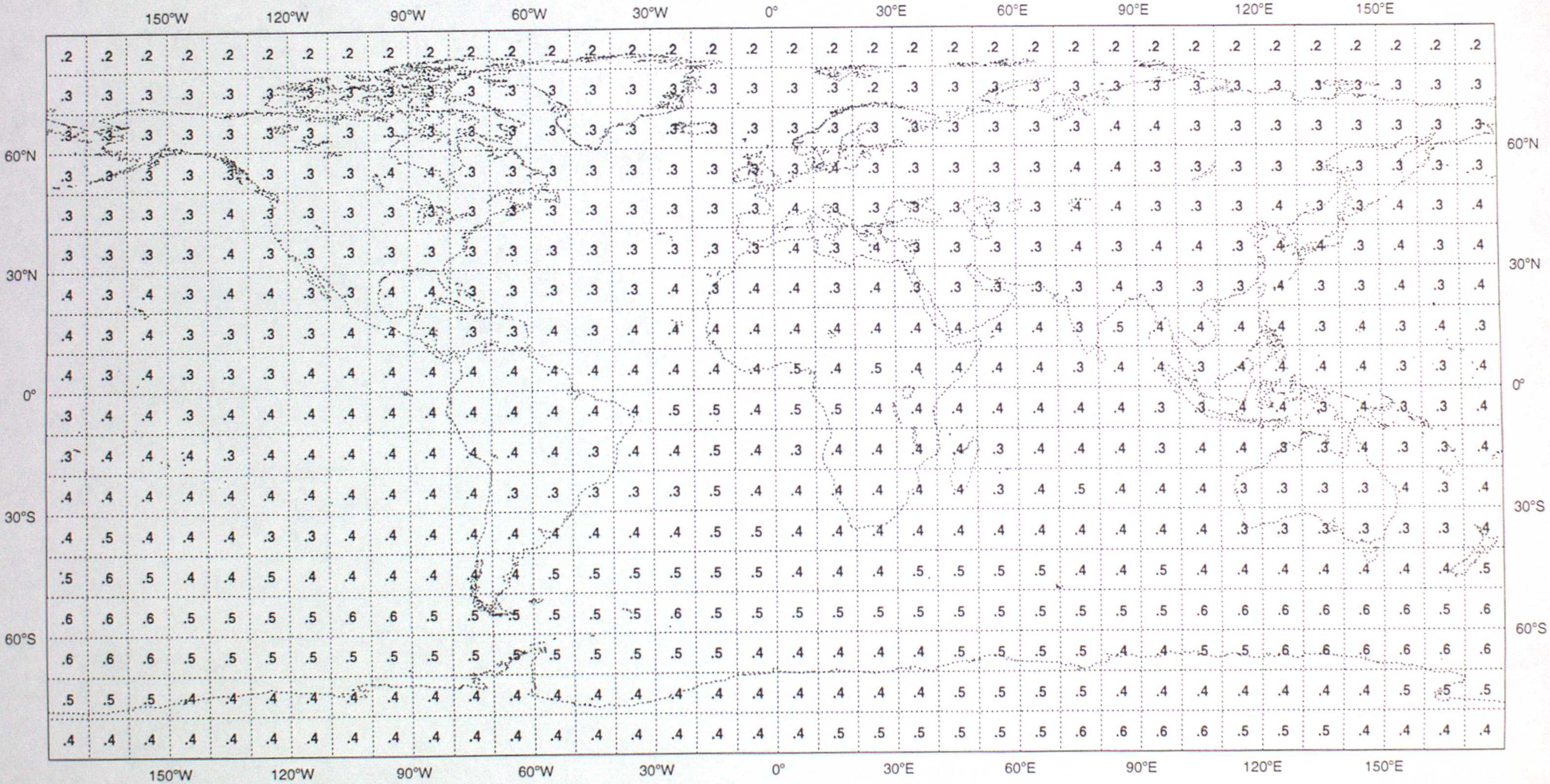

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N
30°N
0°
30°S
60°S
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .4 .4 .4 .4 .3 .3 .3 .3 .3 .3 .4 .4 .4 .3 .3
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.5 .4 .4 .4 .4 .5 .4 .5 .5 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .4 .4 .4 .4 .5 .5 .4 .4 .4 .4 .4 .5 .5 .5
.5 .5 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4
.4 .5 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .5 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4
.4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .3 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .3 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .3 .4
.4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4
.4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .5 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .5 .4 .4 .5
.5 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .3 .4 .4 .3 .3 .3 .3 .3 .4 .4 .4 .3 .3 .3 .3 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .4 .5 .4 .4 .4 .4 .4 .4 .3

Figure 54. ATOVS SD O-B brightness temperature differences (deg C). AUGUST 2001
Channel: AMSUA-9 (100 hPa)
NOAA16, using all observations



.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.4	.4	.3	.3	.3	.4	.3	.3	.4	.3	.4
.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.4	.3	.3	.3	.3	.4	.3	.4	.4	.3	.4	.4	.3	.4	.3	.4
.4	.3	.4	.3	.4	.4	.3	.3	.4	.4	.3	.3	.3	.3	.3	.4	.3	.4	.4	.3	.4	.3	.3	.3	.3	.3	.4	.3	.3	.3	.4	.3	.3	.4	.3	.4
.4	.3	.4	.3	.3	.3	.3	.4	.4	.4	.3	.3	.4	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.5	.4	.4	.4	.4	.3	.4	.3	.4	.3
.4	.3	.4	.3	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.4	.5	.4	.4	.4	.4	.3	.4	.4	.3	.4	.4	.4	.4	.3	.3	.4
.3	.4	.4	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.4	.5	.5	.4	.4	.4	.4	.4	.4	.4	.3	.3	.4	.4	.3	.4	.3	.3	.4
.3	.4	.4	.4	.3	.4	.4	.4	.4	.4	.4	.4	.4	.3	.4	.4	.5	.4	.3	.4	.4	.4	.4	.3	.4	.4	.4	.3	.4	.4	.3	.3	.4	.3	.3	.4
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.5	.4	.4	.4	.4	.4	.4	.3	.4	.5	.4	.4	.4	.3	.3	.3	.3	.4	.3	.4
.4	.5	.4	.4	.4	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.4
.5	.6	.5	.4	.4	.5	.4	.4	.4	.4	.4	.4	.5	.5	.5	.5	.5	.5	.4	.4	.4	.5	.5	.5	.5	.4	.4	.5	.4	.4	.4	.4	.4	.4	.4	.5
.6	.6	.6	.5	.5	.5	.5	.6	.6	.5	.5	.5	.5	.5	.5	.6	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.6	.6	.6	.6	.6	.6	.5	.6
.6	.6	.6	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.5	.5	.5	.5	.4	.4	.5	.5	.6	.6	.6	.6	.6	.6
.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.5	.5	.5
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.5	.5	.5	.5	.6	.6	.6	.6	.5	.5	.5	.4	.4	.4	.4

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH: August 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoy.

Area monitored :10°N - 80°N, 85°W - 0°W

Standard of comparison :Background field from UKMO global model.

Position :Average latitude and longitude for period.

Observation times :All hours combined.

Elements monitored :Mean sea-level pressure (hPa)
:Wind speed (m s^{-1})
:Wind direction (degrees)

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. A positive bias indicates the observation is veered to the background

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors

GROSS ERROR LIMITS :15 hPa (pressure)
:25 m s^{-1} (Vector Wind)

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
116018	26.8	-79.2	ALL	P	SUR	1	0	0	0.0	2.6	2.6
14603	19.4	-82.5	ALL	P	SUR	129	116	90	5.4	-3.8	6.6
21604	19.8	-73.2	ALL	P	SUR	28	28	100			
21614	38.3	-77.0	ALL	P	SUR	13	13	100			
21631	38.3	-77.0	ALL	P	SUR	13	13	100			
21632	38.3	-77.0	ALL	P	SUR	63	63	100			
21633	38.3	-77.0	ALL	P	SUR	18	18	100			
40644	31.4	-39.4	ALL	P	SUR	1	0	0	0.0	-4.5	4.5
41502	24.6	-77.7	ALL	P	SUR	141	0	0	0.9	1.4	1.6
41505	28.3	-66.7	ALL	P	SUR	184	0	0	0.9	-4.0	4.1
41523	32.5	-54.6	ALL	P	SUR	372	0	0	0.5	-0.1	0.5
41552	19.2	-39.6	ALL	P	SUR	643	0	0	0.5	-0.9	1.0
41553	14.9	-58.2	ALL	P	SUR	164	0	0	0.4	-0.3	0.5
41554	18.5	-62.9	ALL	P	SUR	173	0	0	0.4	-0.2	0.4
41559	16.2	-47.2	ALL	P	SUR	598	0	0	0.5	-0.3	0.6
41560	14.8	-43.2	ALL	P	SUR	602	0	0	0.6	-0.4	0.7
41561	15.1	-45.5	ALL	P	SUR	595	0	0	0.5	-0.6	0.8
41562	11.9	-42.7	ALL	P	SUR	18	0	0	0.5	-0.5	0.7
41563	11.8	-33.6	ALL	P	SUR	624	0	0	0.6	-0.5	0.8
41639	25.4	-64.0	ALL	P	SUR	217	0	0	0.5	1.4	1.5
41642	23.3	-66.1	ALL	P	SUR	294	0	0	0.6	0.2	0.7
41644	31.1	-38.7	ALL	P	SUR	396	0	0	0.5	0.1	0.6
41645	26.1	-75.2	ALL	P	SUR	612	1	0	0.5	0.7	0.9
41646	25.3	-75.2	ALL	P	SUR	582	0	0	0.6	0.6	0.8
41647	26.8	-71.1	ALL	P	SUR	618	2	0	0.6	0.4	0.7
41648	24.1	-73.2	ALL	P	SUR	543	0	0	0.6	0.7	0.9
41650	22.6	-66.3	ALL	P	SUR	521	0	0	0.6	0.9	1.1
41651	24.0	-70.0	ALL	P	SUR	522	0	0	0.6	0.6	0.9
41652	25.2	-69.7	ALL	P	SUR	522	0	0	0.5	0.6	0.8
41654	38.3	-77.0	ALL	P	SUR	5	5	100			
41696	25.0	-74.9	ALL	P	SUR	1	0	0	0.0	0.7	0.7
44546	61.3	-22.0	ALL	P	SUR	938	0	0	0.8	-0.9	1.1
44548	51.8	-27.8	ALL	P	SUR	581	0	0	1.0	-0.4	1.0
44549	52.2	-42.6	ALL	P	SUR	965	0	0	1.1	-0.2	1.1
44550	51.2	-45.2	ALL	P	SUR	700	0	0	1.1	-0.6	1.2
44610	59.5	-12.1	ALL	P	SUR	1	1	100			
44611	43.5	-5.0	ALL	P	SUR	243	0	0	0.7	1.4	1.6
44612	34.1	-25.5	ALL	P	SUR	709	0	0	0.5	-0.2	0.5
44613	35.2	-21.1	ALL	P	SUR	717	0	0	0.5	0.3	0.6
44616	45.8	-40.2	ALL	P	SUR	828	0	0	0.9	0.1	0.9
44620	27.2	-46.7	ALL	P	SUR	713	0	0	0.5	-0.2	0.5
44621	54.4	-43.5	ALL	P	SUR	1023	0	0	0.8	-0.2	0.8
44623	33.9	-25.5	ALL	P	SUR	699	0	0	0.5	0.2	0.6
44624	43.6	-42.2	ALL	P	SUR	701	0	0	0.7	-0.1	0.7
44625	45.4	-54.4	ALL	P	SUR	703	0	0	0.8	-0.3	0.9
44627	48.4	-43.5	ALL	P	SUR	661	0	0	0.7	-0.6	0.9
44628	26.9	-45.5	ALL	P	SUR	1	0	0	0.0	-0.8	0.8
44721	39.0	-34.7	ALL	P	SUR	867	0	0	0.6	0.1	0.6
44722	37.3	-32.4	ALL	P	SUR	692	0	0	0.6	-0.3	0.7
44725	50.6	-36.0	ALL	P	SUR	175	14	8	3.4	4.4	5.6
44729	43.8	-10.3	ALL	P	SUR	940	0	0	0.7	0.4	0.8
44761	54.3	-16.8	ALL	P	SUR	676	0	0	0.6	-0.4	0.7
44762	44.0	-4.7	ALL	P	SUR	150	0	0	0.8	0.4	0.9
44765	34.3	-33.6	ALL	P	SUR	649	6	1	0.5	0.0	0.5
44771	56.0	-29.4	ALL	P	SUR	918	0	0	0.9	-0.1	0.9
44775	37.2	-40.2	ALL	P	SUR	1239	0	0	0.5	-0.1	0.5
44776	50.9	-28.1	ALL	P	SUR	695	0	0	0.8	-0.6	1.0
44778	44.6	-22.4	ALL	P	SUR	678	0	0	0.8	-0.1	0.8
44786	50.9	-27.8	ALL	P	SUR	1	0	0	0.0	-0.7	0.7
44813	42.4	-70.7	ALL	P	SUR	1	0	0	0.0	-0.6	0.6

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
44825	40.3	-73.2	ALL	P	SUR	1	0	0	0.0	-0.5	0.5
45751	44.5	-79.4	ALL	P	SUR	1	0	0	0.0	1.5	1.5
45803	45.4	-82.8	ALL	P	SUR	1	0	0	0.0	0.9	0.9
48584	38.8	-77.0	ALL	P	SUR	665	124	19	6.3	-1.1	6.4
498091	26.7	-79.3	ALL	P	SUR	1	0	0	0.0	2.4	2.4
52539	38.3	-77.0	ALL	P	SUR	51	51	100			
62501	34.7	-18.2	ALL	P	SUR	668	0	0	0.5	0.4	0.7
62503	35.4	-16.9	ALL	P	SUR	1087	0	0	0.5	-0.3	0.6
62504	40.4	-21.1	ALL	P	SUR	645	1	0	0.6	-0.1	0.6
62505	33.9	-15.0	ALL	P	SUR	692	0	0	0.5	0.0	0.5
62509	34.7	-15.1	ALL	P	SUR	1	0	0	0.0	0.5	0.5
62510	43.9	-18.4	ALL	P	SUR	243	0	0	0.9	-0.6	1.1
62511	41.5	-24.7	ALL	P	SUR	290	0	0	0.8	-0.5	0.9
62514	57.6	-12.3	ALL	P	SUR	748	0	0	0.6	-0.6	0.8
62552	47.1	-7.0	ALL	P	SUR	1	1	100			
62564	31.6	-16.2	ALL	P	SUR	82	0	0	0.6	0.4	0.7
62596	63.7	-34.0	ALL	P	SUR	686	0	0	0.8	-0.6	1.0
62601	50.6	-2.7	ALL	P	SUR	1	0	0	0.0	-0.5	0.5
62700	50.6	-2.7	ALL	P	SUR	1	0	0	0.0	-0.1	0.1
62703	49.9	-2.9	ALL	P	SUR	1	0	0	0.0	0.7	0.7
62763	47.8	-7.8	ALL	P	SUR	2	0	0	0.0	-1.8	1.8
62801	45.2	-5.0	ALL	P	SUR	1	0	0	0.0	-1.1	1.1
62881	51.0	-13.3	ALL	P	SUR	1	0	0	0.0	-0.8	0.8
62891	53.5	-5.4	ALL	P	SUR	1	0	0	0.0	-1.1	1.1
64549	62.0	-36.9	ALL	P	SUR	1003	4	0	0.9	-0.4	1.0
64550	62.3	-27.5	ALL	P	SUR	1276	7	1	0.7	-0.5	0.9
65514	61.8	-35.6	ALL	P	SUR	1	0	0	0.0	-0.3	0.3
65516	61.4	-35.8	ALL	P	SUR	1475	4	0	0.8	-0.6	1.0
65581	58.6	-36.6	ALL	P	SUR	905	7	1	0.9	-1.0	1.4
65595	56.9	-38.4	ALL	P	SUR	1223	7	1	0.8	-0.4	0.8
65602	59.9	-26.6	ALL	P	SUR	1765	6	0	1.0	-0.6	1.2
65662	61.4	-33.5	ALL	P	SUR	1659	6	0	1.0	-0.6	1.2
65663	53.7	-33.3	ALL	P	SUR	1095	4	0	2.9	-0.7	3.0
74536	42.4	-71.2	ALL	P	SUR	18	18	100			
WIND SPEED											
116018	26.8	-79.2	ALL	SPEED	SUR	1	0	0	0.0	1.6	1.6
41552	19.2	-39.6	ALL	SPEED	SUR	636	0	0	1.4	-0.1	1.4
41553	14.9	-58.2	ALL	SPEED	SUR	161	0	0	2.2	0.4	2.2
41554	18.5	-62.9	ALL	SPEED	SUR	169	0	0	2.8	0.9	2.9
41559	16.2	-47.2	ALL	SPEED	SUR	592	1	0	1.6	0.9	1.8
41560	14.8	-43.2	ALL	SPEED	SUR	594	0	0	1.6	0.3	1.6
41561	15.1	-45.5	ALL	SPEED	SUR	591	0	0	1.5	0.1	1.5
41562	11.9	-42.7	ALL	SPEED	SUR	18	0	0	1.4	1.4	1.9
41563	11.8	-33.6	ALL	SPEED	SUR	619	2	0	2.4	1.1	2.7
41639	25.4	-64.0	ALL	SPEED	SUR	127	2	2	4.9	-0.4	4.9
41642	23.3	-66.1	ALL	SPEED	SUR	43	0	0	6.3	0.9	6.4
41644	31.1	-38.7	ALL	SPEED	SUR	12	0	0	1.9	-2.2	2.9
41645	26.1	-75.2	ALL	SPEED	SUR	604	0	0	2.4	-0.1	2.4
41646	25.3	-75.2	ALL	SPEED	SUR	574	6	1	1.9	0.0	1.9
41647	26.8	-71.1	ALL	SPEED	SUR	613	3	0	2.8	0.6	2.9
41648	24.1	-73.2	ALL	SPEED	SUR	537	4	1	2.8	0.1	2.8
41650	22.6	-66.3	ALL	SPEED	SUR	519	1	0	1.9	-0.9	2.1
41651	24.0	-70.0	ALL	SPEED	SUR	516	0	0	1.6	-0.8	1.8
41652	25.2	-69.7	ALL	SPEED	SUR	521	1	0	2.1	-0.3	2.1
41696	25.0	-74.9	ALL	SPEED	SUR	1	0	0	0.0	0.6	0.6
44825	40.3	-73.2	ALL	SPEED	SUR	1	0	0	0.0	0.7	0.7
498091	26.7	-79.3	ALL	SPEED	SUR	1	0	0	0.0	3.3	3.3
62504	40.4	-21.1	ALL	SPEED	SUR	428	5	1	4.9	1.8	5.2
62552	47.1	-7.0	ALL	SPEED	SUR	387	0	0	1.5	-0.4	1.5
62556	36.6	-20.1	ALL	SPEED	SUR	523	0	0	1.2	-0.2	1.2

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND SPEED											
62559	45.9	-19.0	ALL	SPEED	SUR	486	0	0	1.7	-0.3	1.7
62565	38.4	-12.6	ALL	SPEED	SUR	304	0	0	1.4	-0.2	1.4
62567	37.1	-18.5	ALL	SPEED	SUR	532	0	0	1.3	0.2	1.3
62569	34.3	-14.9	ALL	SPEED	SUR	476	0	0	1.2	0.1	1.2
62570	45.5	-16.5	ALL	SPEED	SUR	482	0	0	1.8	0.1	1.8
62571	37.3	-13.3	ALL	SPEED	SUR	215	0	0	1.7	-0.5	1.7
62572	41.4	-18.0	ALL	SPEED	SUR	501	0	0	1.6	0.2	1.6
62703	49.9	-2.9	ALL	SPEED	SUR	1	0	0	0.0	3.0	3.0
62763	47.8	-7.8	ALL	SPEED	SUR	3	0	0	4.0	-3.0	5.0
62801	45.2	-5.0	ALL	SPEED	SUR	1	0	0	0.0	-1.7	1.7
62881	51.0	-13.3	ALL	SPEED	SUR	1	0	0	0.0	2.4	2.4
62891	53.5	-5.4	ALL	SPEED	SUR	1	0	0	0.0	-0.6	0.6
WIND DIRECTION											
116018	26.8	-79.2	ALL	DIRN.	SUR	1	0	0	0.0	5.7	5.7
41552	19.2	-39.6	ALL	DIRN.	SUR	506	0	0	12.1	1.0	12.1
41553	14.9	-58.2	ALL	DIRN.	SUR	161	0	0	13.9	26.8	30.2
41554	18.5	-62.9	ALL	DIRN.	SUR	149	0	0	16.4	-22.0	27.4
41559	16.2	-47.2	ALL	DIRN.	SUR	516	1	0	14.5	-4.2	15.1
41560	14.8	-43.2	ALL	DIRN.	SUR	451	0	0	12.6	14.0	18.9
41561	15.1	-45.5	ALL	DIRN.	SUR	461	0	0	12.4	-1.9	12.5
41563	11.8	-33.6	ALL	DIRN.	SUR	185	2	1	36.2	9.2	37.3
41639	25.4	-64.0	ALL	DIRN.	SUR	49	2	4	19.1	-81.6	83.8
41642	23.3	-66.1	ALL	DIRN.	SUR	29	0	0	14.4	3.9	14.9
41645	26.1	-75.2	ALL	DIRN.	SUR	142	0	0	30.7	20.5	36.9
41646	25.3	-75.2	ALL	DIRN.	SUR	196	6	3	25.4	12.7	28.4
41647	26.8	-71.1	ALL	DIRN.	SUR	276	3	1	27.5	20.7	34.4
41648	24.1	-73.2	ALL	DIRN.	SUR	318	4	1	21.3	21.1	30.0
41650	22.6	-66.3	ALL	DIRN.	SUR	422	1	0	13.3	-0.9	13.3
41651	24.0	-70.0	ALL	DIRN.	SUR	348	0	0	15.5	15.2	21.8
41652	25.2	-69.7	ALL	DIRN.	SUR	296	1	0	22.9	-8.4	24.4
41696	25.0	-74.9	ALL	DIRN.	SUR	1	0	0	0.0	9.3	9.3
498091	26.7	-79.3	ALL	DIRN.	SUR	1	0	0	0.0	21.3	21.3
62504	40.4	-21.1	ALL	DIRN.	SUR	198	5	3	16.6	-2.3	16.8
62552	47.1	-7.0	ALL	DIRN.	SUR	204	0	0	19.7	4.5	20.2
62556	36.6	-20.1	ALL	DIRN.	SUR	234	0	0	14.6	11.5	18.6
62559	45.9	-19.0	ALL	DIRN.	SUR	292	0	0	15.2	-2.3	15.3
62565	38.4	-12.6	ALL	DIRN.	SUR	119	0	0	11.6	-4.2	12.4
62567	37.1	-18.5	ALL	DIRN.	SUR	273	0	0	14.4	6.6	15.9
62569	34.3	-14.9	ALL	DIRN.	SUR	198	0	0	9.0	-1.0	9.1
62570	45.5	-16.5	ALL	DIRN.	SUR	266	0	0	20.4	-9.8	22.6
62571	37.3	-13.3	ALL	DIRN.	SUR	107	0	0	8.4	0.5	8.4
62572	41.4	-18.0	ALL	DIRN.	SUR	222	0	0	15.4	-2.0	15.6
62763	47.8	-7.8	ALL	DIRN.	SUR	3	0	0	23.7	22.6	32.7
62801	45.2	-5.0	ALL	DIRN.	SUR	1	0	0	0.0	17.2	17.2
62881	51.0	-13.3	ALL	DIRN.	SUR	1	0	0	0.0	8.6	8.6
62891	53.5	-5.4	ALL	DIRN.	SUR	1	0	0	0.0	-27.1	27.1

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: August 2001

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:40°N - 70°N, 60°W - 0°W.
Standard of comparison		:Background field from UKMO global model.
Observation times		:All hours combined.
Level(s) monitored		:300.0 - 150.0 hPa
Elements monitored		:TEMP in °C ; WIND in m s^{-1}
Parameters monitored	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP ≥ 20

NB: All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	2402	0	4	1.8	0.2	2378	0	4	0	6.7	0.7
ACA	1928	0	2	1.7	-0.1	1950	0	3	0	6.2	0.7
AEA	399	1	5	1.6	0.6	395	0	6	0	7.1	0.4
AEL	425	0	11	1.6	-0.6	440	1	12	0	7.2	0.5
AFL	589	1	3	2.1	0.9	592	0	3	0	7.6	0.6
AFR	982	1	5	1.5	0.2	997	0	6	0	7.3	0.9
AIH	123	1	7	1.9	0.1	120	0	7	0	8.8	0.8
AJM	165	0	4	1.4	-0.1	168	1	4	0	6.4	1.1
ALM	67	0	9	1.3	0.6	68	0	15	0	6.6	-0.6
AMM	61	0	2	1.0	0.6	60	0	5	0	7.6	0.4
AMX	177	2	6	1.8	0.3	178	1	6	0	9.9	0.2
AVA	68	0	6	1.8	0.5	69	0	7	0	7.4	0.2
AZA	555	1	9	2.4	0.5	554	0	6	0	8.8	0.8
BAL	114	1	11	1.5	-0.2	115	0	10	0	6.5	0.3
BAW	776	0	6	1.8	0.1	778	0	7	0	7.0	0.7
BBB	22	0	0	1.3	0.5	22	0	0	0	4.2	0.8
BLX	25	0	4	1.9	0.5	25	0	0	0	5.1	-0.6
BWA	47	0	100	3.2	2.7	49	0	4	0	10.2	1.5
CFG	420	0	2	1.5	-0.6	431	0	3	0	7.2	0.6
CLX	289	0	2	1.5	0.1	293	0	2	0	5.4	0.2
CMM	571	1	5	1.6	-0.1	575	0	5	0	7.1	0.9
COA	501	0	15	1.2	0.0	500	0	19	0	9.1	0.9
CRL	391	0	2	1.6	0.4	396	0	3	0	8.0	0.7
CTB	54	0	0	1.2	0.5	57	0	0	0	5.7	0.1
CUB	156	1	4	1.9	0.9	157	0	3	0	7.1	-0.2
DAL	1415	0	15	1.5	-0.4	1423	0	16	0	7.0	0.6
DLH	1216	0	6	1.5	0.3	1205	0	7	0	6.4	0.7
EDW	21	0	5	2.1	0.0	23	4	4	0	4.8	1.6
EEZ	21	0	10	1.0	0.5	21	0	10	0	5.5	0.9
EIA	36	0	11	1.5	0.1	36	0	47	0	20.6	3.1
EIN	54	0	0	1.6	0.7	57	0	2	0	6.1	2.1
ELY	199	0	4	1.7	0.2	197	0	5	0	7.2	0.7
ETH	46	0	11	1.1	-0.3	45	0	16	0	8.6	-0.2
EWW	131	4	6	1.5	0.2	134	1	2	0	6.3	1.6
FDX	838	0	31	1.6	0.3	854	0	31	0	8.1	1.0
FIN	401	0	2	1.6	0.5	393	0	3	0	7.0	1.1
GAF	86	1	3	1.7	-0.3	86	0	5	0	6.6	1.3
GCO	117	1	7	1.8	0.4	121	0	100	0	15.2	3.6
GRL	45	0	0	1.5	0.4	44	0	0	0	4.5	-0.1
GTI	84	0	5	2.0	-0.8	87	0	9	0	7.7	0.3
HLN	20	0	0	1.1	-0.6	20	0	0	0	5.4	0.2
IBE	1316	1	9	1.7	0.5	1307	1	11	0	8.3	0.3
ICE	1096	0	2	1.6	0.1	1075	0	3	0	6.7	1.2
JKK	256	1	5	1.3	0.0	244	0	7	0	8.0	0.0
JMC	50	0	0	1.8	-0.3	48	0	0	0	5.5	1.9
KLM	1356	0	5	1.6	0.1	1378	0	6	0	6.6	0.6
LDA	32	3	3	1.0	-0.2	31	0	3	0	9.6	1.4
LDI	367	1	4	1.5	-0.7	366	0	5	0	8.1	-0.1
LIB	482	2	12	1.5	0.6	491	0	12	0	7.5	0.6
LOT	245	1	3	1.7	-1.0	241	0	3	0	6.9	0.6
LTU	540	0	6	1.6	0.0	539	0	6	0	6.2	0.4
LXR	53	2	13	1.5	0.4	54	6	24	0	12.3	2.0
MAS	28	0	4	1.2	0.2	29	0	3	0	5.1	0.7
MMZ	31	0	3	2.2	1.3	32	0	3	0	9.9	1.4
MON	50	6	6	1.3	0.0	50	0	2	0	6.1	0.8
MPD	241	0	1	1.3	0.0	238	0	2	0	6.5	0.3
MPH	360	1	2	1.6	-0.7	366	0	3	0	6.2	0.5
NWA	4068	0	1	1.6	0.4	4103	0	2	0	6.6	0.7
OAE	45	0	13	2.1	-0.2	45	0	18	0	17.1	3.8

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
PAC	112	0	6	1.7	-0.4	116	2	9	0	7.9	0.1
RAM	104	0	3	1.3	-0.9	101	0	6	0	8.5	0.1
RCH	89	1	100	1.9	0.7	92	0	100	0	13.3	4.7
RRR	115	2	6	1.4	0.3	114	1	6	0	6.8	0.9
RZO	185	1	4	1.4	-0.6	185	0	3	0	6.4	0.4
SAS	24	0	0	1.4	0.3	22	0	0	0	2.9	-0.3
SLR	74	0	8	1.4	0.8	76	0	11	0	6.6	1.1
SSV	41	0	2	1.1	0.3	44	5	7	0	9.8	0.1
SVA	68	1	7	1.6	0.4	75	1	13	0	10.7	-1.0
SWR	23	0	13	1.2	-0.2	23	0	39	0	18.1	8.9
TAP	397	0	4	1.5	-0.1	387	0	2	0	6.0	0.4
TSC	281	0	2	2.0	0.3	279	0	4	0	9.5	1.2
TWA	229	1	5	1.5	0.0	225	0	6	0	7.7	1.2
UAL	1146	0	100	1.9	0.0	1156	0	100	0	6.4	0.7
UPS	1000	0	33	1.7	0.3	1004	0	35	0	7.4	0.8
USA	112	1	4	1.5	0.2	97	0	2	0	6.7	1.2
VIR	417	0	2	1.7	0.1	421	0	4	0	8.8	1.0
WOA	63	0	5	1.7	0.7	64	0	3	0	5.7	1.7
YSS	41	0	2	1.5	1.0	41	0	0	0	6.2	0.6
EU	22535	0	24	1.3	0.0	22535	0	24	0	4.7	0.4
KL	2313	0	50	1.5	0.9	2290	0	9	0	5.0	1.1
LH	268	0	10	1.6	1.0	267	0	10	0	4.4	0.9
N	320	3	8	2.3	0.5	330	0	3	0	6.9	0.4
US ACARS	30788	11	37	1.4	0.4	30788	0	27	0	5.2	0.8

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: August 2001

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	100	3	0	5.0	38.7	38.3
DBBH	12	Z	100	3	0	10.7	53.1	52.0
EHOA	12	Z	100	12	1	10.6	43.4	42.1
ELML7	00	Z	100	17	0	13.7	33.0	30.0
ELML7	12	Z	100	21	0	11.6	42.2	40.5
FNOR	00	Z	100	13	0	12.9	36.8	34.5
FNOR	12	Z	100	8	0	12.5	27.5	24.5
FNOU	00	Z	100	14	0	9.2	44.2	43.2
FNOU	12	Z	100	15	0	11.3	33.7	31.8
FNPH	00	Z	100	10	0	10.7	34.0	32.3
FNPH	12	Z	100	11	0	11.0	23.9	21.3
FNRS	00	Z	100	9	0	11.9	42.9	41.2
FNRS	12	Z	100	10	0	6.5	36.7	36.1
LDWR	00	Z	100	30	0	11.2	15.6	10.8
LDWR	12	Z	100	30	0	6.5	7.5	3.7
OVYA2	00	Z	100	2	0	2.0	6.3	6.0
OVYA2	12	Z	100	1	0	0.0	3.0	3.0
OXYH2	00	Z	100	5	0	10.7	13.0	7.4
OXYH2	12	Z	100	5	0	6.9	12.8	10.8
SMLQ	00	Z	100	1	0	0.0	2.0	2.0
SMLQ	12	Z	100	3	0	6.1	26.4	25.7
SWJS	00	Z	100	4	0	9.7	33.7	32.3
SWJS	12	Z	100	4	0	8.0	32.5	31.5
V2XO	00	Z	100	3	0	4.0	31.6	31.3
V2XO	12	Z	100	4	0	8.1	32.5	31.5
WPKD	00	Z	100	8	3	73.0	87.7	48.6
WPKD	12	Z	100	10	1	10.8	20.2	17.0
ZCBP6	00	Z	100	5	0	12.6	27.3	24.2
ZCBP6	12	Z	100	7	0	12.3	35.9	33.7
03953	00	Z	100	30	0	9.6	38.8	37.6
03953	12	Z	100	30	0	12.5	37.7	35.6
04018	00	Z	100	29	0	10.5	25.4	23.1
04018	12	Z	100	31	0	10.3	22.9	20.4
04220	00	Z	100	30	0	12.9	28.0	24.8
04220	12	Z	100	30	0	16.3	31.4	26.8
04270	00	Z	100	28	1	24.1	25.3	7.4
04270	12	Z	100	30	0	36.4	36.7	4.6
04339	00	Z	100	30	0	6.2	27.3	26.6
04339	12	Z	100	31	0	9.7	19.4	16.8
04360	00	Z	100	28	0	7.0	18.8	17.5
04360	12	Z	100	31	0	7.9	16.6	14.6
08001	00	Z	100	27	0	17.7	18.6	5.7
08001	12	Z	100	27	0	19.7	21.2	8.0
08508	00	Z	100	30	0	9.9	38.3	37.0
08508	12	Z	100	28	0	10.2	29.1	27.2
08522	00	Z	100	30	0	8.7	38.8	37.9
08522	12	Z	100	31	0	11.2	30.6	28.5
08594	12	Z	100	24	0	17.8	30.3	24.5
60020	00	Z	100	28	0	18.3	39.3	34.8
60020	12	Z	100	28	0	13.2	38.3	36.0
71600	00	Z	100	30	0	8.1	28.4	27.2
71600	12	Z	100	31	0	18.0	30.2	24.3
72201	00	Z	100	27	0	47.6	54.4	26.5
72201	12	Z	100	31	0	41.9	52.0	30.8
72402	00	Z	100	28	0	21.6	58.1	53.9
72402	12	Z	100	30	0	12.5	67.5	66.4
74494	00	Z	100	30	0	7.5	34.8	34.0
74494	12	Z	100	27	0	8.9	23.7	21.9
78016	00	Z	100	24	0	9.1	44.8	43.9
78016	12	Z	100	26	0	14.9	41.8	39.1

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: August 2001

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	500	7	0	8.7	15.5	12.9
DBBH	12	Z	500	5	0	7.2	19.8	18.4
EHOA	12	Z	500	16	0	4.8	17.5	16.8
ELML7	00	Z	500	17	0	6.4	7.2	3.3
ELML7	12	Z	500	21	0	8.1	14.0	11.4
FNOR	00	Z	500	15	0	8.4	8.9	3.1
FNOR	12	Z	500	14	0	8.9	11.4	7.1
FNOU	00	Z	500	15	0	7.3	13.4	11.3
FNOU	12	Z	500	15	0	6.7	12.3	10.4
FNPH	00	Z	500	11	0	6.9	7.0	-0.8
FNPH	12	Z	500	12	0	6.6	6.8	1.3
FNRS	00	Z	500	11	0	8.9	9.3	2.5
FNRS	12	Z	500	10	0	8.5	12.8	9.6
LDWR	00	Z	500	30	0	6.7	6.8	1.3
LDWR	12	Z	500	30	0	5.4	5.4	0.5
OVYA2	00	Z	500	2	0	1.5	12.6	-12.5
OVYA2	12	Z	500	1	0	0.0	1.0	-1.0
OXYH2	00	Z	500	5	0	9.2	12.4	-8.2
OXYH2	12	Z	500	6	0	7.8	8.3	-3.0
SMLQ	00	Z	500	5	0	8.6	11.7	8.0
SMLQ	12	Z	500	5	0	4.1	16.1	15.6
SWJS	00	Z	500	4	0	8.0	8.2	-1.8
SWJS	12	Z	500	4	0	4.9	16.5	15.8
V2XO	00	Z	500	3	0	20.3	28.0	-19.3
V2XO	12	Z	500	4	0	15.9	16.1	2.5
WPKD	00	Z	500	7	4	6.9	9.6	6.7
WPKD	12	Z	500	10	1	8.1	11.9	8.8
ZCBP6	00	Z	500	5	0	8.6	10.5	6.0
ZCBP6	12	Z	500	7	0	10.7	18.0	14.4
03953	00	Z	500	30	0	6.4	12.1	10.3
03953	12	Z	500	31	0	6.8	15.7	14.2
04018	00	Z	500	29	0	10.0	16.8	13.5
04018	12	Z	500	31	0	6.3	13.4	11.8
04220	00	Z	500	30	0	6.7	12.6	10.7
04220	12	Z	500	31	0	10.2	13.1	8.4
04270	00	Z	500	30	0	22.2	22.5	3.5
04270	12	Z	500	30	0	17.7	17.9	-2.9
04339	00	Z	500	30	0	8.6	20.3	18.3
04339	12	Z	500	31	0	11.9	17.5	12.9
04360	00	Z	500	28	0	6.5	7.9	4.5
04360	12	Z	500	31	0	8.5	8.7	2.1
08001	00	Z	500	27	0	10.9	12.9	-6.9
08001	12	Z	500	28	0	14.0	14.1	1.4
08508	00	Z	500	30	0	9.4	10.2	3.9
08508	12	Z	500	30	0	8.7	10.4	5.8
08522	00	Z	500	30	0	6.0	7.9	5.2
08522	12	Z	500	31	0	6.5	9.2	6.5
08594	12	Z	500	26	0	8.5	9.2	-3.3
60020	00	Z	500	28	0	10.5	10.9	3.0
60020	12	Z	500	30	0	9.6	15.7	12.4
71600	00	Z	500	30	0	8.1	8.1	0.4
71600	12	Z	500	31	0	12.7	15.1	8.2
72201	00	Z	500	30	0	7.2	11.0	8.3
72201	12	Z	500	31	0	8.6	9.0	2.7
72402	00	Z	500	29	0	8.2	11.5	8.0
72402	12	Z	500	31	0	6.9	12.5	10.5
74494	00	Z	500	30	0	6.0	8.8	6.5
74494	12	Z	500	29	0	4.3	8.7	7.6
78016	00	Z	500	24	0	7.8	17.0	15.2
78016	12	Z	500	28	0	9.5	18.6	16.0

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: August 2001

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	100	3	0	0	4.7	-0.8	0.0
DBBH	12	V	100	4	0	0	1.7	1.1	0.2
EHOA	12	V	100	11	0	18	10.0	3.7	0.0
ELML7	00	V	100	17	0	0	5.7	-1.6	1.2
ELML7	12	V	100	19	0	0	4.3	-0.2	1.2
FNOR	00	V	100	11	0	0	3.5	-0.4	1.0
FNOR	12	V	100	8	0	0	4.7	-0.7	-1.3
FNOU	00	V	100	14	0	0	3.9	-2.1	0.0
FNOU	12	V	100	10	0	0	3.3	-1.5	-1.8
FNPH	00	V	100	10	0	0	4.0	-0.7	-0.3
FNPH	12	V	100	8	0	0	2.8	0.3	0.0
FNRS	00	V	100	6	0	0	4.0	-1.3	1.5
FNRS	12	V	100	6	0	0	4.1	0.1	-2.3
LDWR	00	V	100	30	0	0	2.2	-0.3	-0.5
LDWR	12	V	100	30	0	0	2.5	0.0	0.0
OVYA2	00	V	100	2	0	0	1.2	0.8	-0.3
OVYA2	12	V	100	1	0	0	1.7	-0.6	1.6
OXYH2	00	V	100	4	0	0	2.8	-1.0	1.1
OXYH2	12	V	100	4	0	0	2.9	-0.5	0.4
SWJS	00	V	100	4	0	0	3.5	-0.4	-0.7
SWJS	12	V	100	4	0	0	4.9	-0.1	2.9
V2XO	00	V	100	3	0	0	3.5	-0.9	-0.7
V2XO	12	V	100	4	0	0	3.2	0.3	-0.1
WPKD	00	V	100	10	0	0	3.2	-0.4	0.4
WPKD	12	V	100	10	0	0	2.6	0.2	0.6
ZCBP6	00	V	100	4	0	0	4.7	-0.7	-0.1
ZCBP6	12	V	100	5	0	0	2.7	-0.1	-1.4
03953	00	V	100	30	0	0	2.4	0.6	0.8
03953	12	V	100	30	0	0	2.8	0.6	0.9
04018	00	V	100	27	0	0	2.5	0.4	-0.1
04018	12	V	100	30	0	0	2.3	0.7	-0.4
04220	00	V	100	28	0	0	2.8	-0.8	0.0
04220	12	V	100	29	0	0	2.7	-0.5	0.0
04270	00	V	100	28	0	0	2.8	0.4	-0.4
04270	12	V	100	29	0	0	2.9	0.3	0.9
04339	00	V	100	30	0	0	4.2	-0.8	0.0
04339	12	V	100	30	0	0	4.4	-0.1	0.3
04360	00	V	100	28	0	0	2.7	0.2	-0.6
04360	12	V	100	31	0	0	3.1	-0.1	-0.7
08001	00	V	100	27	0	0	4.2	0.4	0.2
08001	12	V	100	24	0	0	3.8	0.3	-0.2
08508	00	V	100	13	0	0	3.4	-1.5	0.1
08508	12	V	100	16	0	0	3.8	-0.2	0.2
08522	00	V	100	29	0	0	4.2	0.0	0.1
08522	12	V	100	29	0	0	4.1	0.0	-0.6
08594	12	V	100	25	0	100	4.5	-0.1	-1.4
60020	00	V	100	28	0	0	4.4	-1.1	-0.1
60020	12	V	100	26	0	0	4.4	-0.1	-0.3
71600	00	V	100	30	0	0	3.4	0.0	0.2
71600	12	V	100	31	0	0	2.7	0.7	0.1
72201	00	V	100	27	0	0	3.0	0.2	-0.3
72201	12	V	100	31	0	0	2.3	0.3	-0.4
72402	00	V	100	29	0	0	3.3	0.0	-0.1
72402	12	V	100	30	0	0	3.7	0.2	-0.1
74494	00	V	100	30	0	0	2.2	0.0	0.6
74494	12	V	100	27	0	0	2.5	0.4	0.6
78016	00	V	100	23	1	0	4.7	-0.2	1.3
78016	12	V	100	26	0	0	5.1	1.4	-1.7

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: August 2001

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in $m\ s^{-1}$
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS:	Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	500	6	0	0	3.1	0.9	-1.1
DBBH	12	V	500	4	0	0	2.9	2.5	-0.3
EHOA	12	V	500	14	0	0	3.8	-1.3	-0.4
ELML7	00	V	500	15	0	0	3.6	-0.4	0.3
ELML7	12	V	500	19	0	0	3.3	0.1	1.3
FNOR	00	V	500	12	0	0	4.7	0.1	1.0
FNOR	12	V	500	12	0	0	3.2	0.2	-0.3
FNOU	00	V	500	13	0	0	4.2	-1.5	-0.3
FNOU	12	V	500	10	0	0	3.6	-0.8	0.9
FNPH	00	V	500	9	0	0	3.6	-0.5	0.6
FNPH	12	V	500	9	1	0	3.0	-0.7	1.4
FNRS	00	V	500	6	0	0	3.7	-2.2	0.4
FNRS	12	V	500	7	0	0	3.3	0.6	-0.7
LDWR	00	V	500	30	0	0	3.1	-0.6	-0.6
LDWR	12	V	500	30	0	0	3.1	0.2	-0.3
OVYA2	00	V	500	2	0	0	2.3	0.9	0.9
OVYA2	12	V	500	1	0	0	1.7	-0.5	1.6
OXYH2	00	V	500	4	0	0	3.4	1.1	-0.1
OXYH2	12	V	500	5	0	0	2.3	0.8	-1.1
SMLQ	00	V	500	5	0	0	7.0	3.1	-1.6
SMLQ	12	V	500	5	0	0	5.2	-0.2	0.6
SWJS	00	V	500	4	0	0	3.7	0.7	-0.7
SWJS	12	V	500	4	0	0	4.3	0.5	-1.2
V2XO	00	V	500	3	0	0	4.2	1.4	1.7
V2XO	12	V	500	4	0	0	6.6	3.4	0.0
WPKD	00	V	500	9	0	0	3.1	0.0	0.5
WPKD	12	V	500	10	0	0	3.1	0.1	0.2
ZCBP6	00	V	500	3	0	0	3.8	1.9	-0.5
ZCBP6	12	V	500	4	0	0	1.9	-0.8	-0.3
03953	00	V	500	30	0	0	4.1	-0.4	-0.1
03953	12	V	500	31	0	0	3.8	1.2	-0.4
04018	00	V	500	29	0	0	3.1	-0.3	0.0
04018	12	V	500	31	0	0	3.5	-0.2	0.6
04220	00	V	500	28	0	0	4.1	-0.8	-0.3
04220	12	V	500	31	0	0	4.2	-0.7	-0.4
04270	00	V	500	29	0	0	3.5	-1.3	0.8
04270	12	V	500	28	0	0	4.3	-1.4	0.1
04339	00	V	500	30	0	0	3.4	0.0	-0.3
04339	12	V	500	31	0	0	3.9	-1.3	-0.2
04360	00	V	500	28	0	0	3.2	-0.3	1.1
04360	12	V	500	31	0	0	3.0	0.5	0.3
08001	00	V	500	27	0	0	4.2	0.3	0.5
08001	12	V	500	28	0	0	4.3	0.5	0.4
08508	00	V	500	14	0	0	3.1	0.0	-1.2
08508	12	V	500	16	0	0	5.5	-1.2	0.7
08522	00	V	500	30	0	0	3.3	0.3	0.3
08522	12	V	500	31	0	0	3.5	0.0	-0.7
08594	12	V	500	25	0	100	5.1	-0.4	-2.8
60020	00	V	500	28	0	0	3.4	-0.2	-0.9
60020	12	V	500	26	0	0	3.2	-0.3	-0.9
71600	00	V	500	30	0	0	4.0	-0.2	-0.3
71600	12	V	500	31	0	0	3.6	0.4	-0.1
72201	00	V	500	30	0	0	3.3	-0.3	-0.9
72201	12	V	500	31	0	0	3.5	0.1	-0.7
72402	00	V	500	30	0	0	2.6	0.4	-0.6
72402	12	V	500	31	0	0	2.8	-0.4	-0.7
74494	00	V	500	30	0	0	2.2	0.0	-0.3
74494	12	V	500	29	0	0	2.2	0.0	0.2
78016	00	V	500	24	0	0	4.0	-1.9	0.5
78016	12	V	500	28	0	0	3.6	-0.2	0.9

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45